

Thorn-EMI takes over Software Sciences and Datasolve in surprise deal



#### **NEWS BRIEF**

#### Hoskyns quits No.10 team

JOHN HOSKYNS, founder of the Hoskyns Group, has left his position as head of the Prime Mioister's Policy Unit after three

years.

It is expected that he will again devote his working time to the computer systems and services group which bears his name and which was taken over by the US Martin Marietto Corp in 1975.

#### **New Winchesters**

A NEW series of 51/4-inch Win-ehester disc drives with a capacity of 26.67 Mbytcs, more than half as great again as the previous series, has been announced by Rodime, the only UK manufacturer of Winebester discs and drives. Called the RO 200 Series, the drives are a natural development of the preced-ing RO 100 Series,

#### Unions approve

APPROVAL of a two-year new technology agreement with the government has been given by the Council of Civil Service Unions. All but two of the nine unions voted in favour of the pact.

The agreement stipulates that there will be no compulsory redun-dancles because of the introduction of new technology.

#### Eire factory shuts

IRISH fectory of US point-of-sale manufacturer Data Terminal Systems has been closed. The £4 million plant, which received £1.4 million in Irish state investment funds, was opened just over two years ago.

#### Indian target

SYSTEM X is high on the agenda during the Indian Prime Minister Indira Gandhi's visit to the UK this week. India is the first export

## Services

by Baris Sedaeca THE BOC group is making a total withdrawal from the computer services market. Electronics group Thorn-EMI has concluded an agreement in principle to take over the majority of BOC's computer that it has decided to concentrate that it has decided to concentrate on its core business that is week some months after BOC's private decision last October to concentrate on its main businesses. "If you attudy what BOC has done over the last year, you can see that it has decided to concentrate on its core business that is well-

The shock announcement came



BARLOW . . . Thorn-BMI wants to expand into high technology.

done over the last year, you can see that it has decided to concentrate on its core business, that is welding, gas, medical and carbides," says Colin Southgate, chief executive at BOC's computer services divisions.

division.

"Although I can say in all houesty that we were meeting the made the decision that company made the decision that company made the decision that computer services does not fit in with its structure and strategy," he added.

The sell-off includes software bouse Software Sciences ond

Bureau BOC Datasolve, both wholly-owned subsidiaries. They have combined annual sales of £30

million and employ 920 people.

The activities to be acquired also include Software Sciences' developing interests in retail point-of-sale applications, as well as controct maintenance services. BOC itself bought Software Sciences in 1978.

Also going will be Knight Computer Services, o major contract recruitment agency. It is not being taken by Thorn EMI and will be sold to a consortium of private



SOUTHGATB . . . "Computer services does not fit in."

huyers, probably including its existing management.

BOC also has holdings in three other computer services companies — 51% of British Medical Data Systems, 41% of the Stock Exchange's Datastresm service, and 40% of software house Triad Computation Services neering group, said: "Part of Thorn-EMI's corporate strategy is to expand into high technology areas, of which software and ser-vices is an increasingly important puting Services.

BOC's nwn computing requirements are provided by o separate interoal facility, which employs about 100 DP staff. "This acquisition of one of the UK's most highly regarded

systems and bureau operations would represent a key move in the development of Thorn-EMI's exabout 100 DP statt.

Southgate will spend one week a month as non-executive chairman of the two companies which are being integrated into Thorn-BM1. The rest of his time will go to the remainder of the BOC computer services holdings. He says that BOC may decide to hang on to these minority investments depending on negotiations with its joint venture parances. panding interests in information technology." When negotiations between BOC and Thorn-EMI are completed, the activities of Datasolve and Software Sciences will continue to be separate. They will form an independent division oint venture parincrs.

Commenting on the takeover,

## **Pirates** scrump the Apple crop

THE first manufacturing aite for Apple Computer was the garage of a founder, Stephen Jobs. Now once again, Apple computers are being manufactured in garagea. This time, however, they belong to pirates, who are producing unauthorised versions of one of the world's best selling personal computers — and Apple Compu-ter's lawyers are gearing up to

stop them.
So far Apple has identified shout six small companies in Taisbout six small companies in Taiwan and Hong Kong that are infringing its patents by manufacturing the Apple design and selling it either under the Apple logo or under another with a strong similarity to the word Apple. An example is Apolto.

The genuine company does not yet have an idea of the volume being a hipped, although the

being ahipped, although the being shipped, although the amounts are apparently quite small. The Apple II computer is so far the only one being bootlegged, and so far it is turning up only in the Far East.

As an industry leader and with one of the industry's most expensive products Apple is apparently the only major firm to suffer such insting attempts yet. Spokesman

pirating attempts yet. Spokesman Fred Hoar said he was unaware or of any other attempts at pl-

or or any other attempts at plracy, or of any sort of industry-wide task force.

Illicit copying of both products and brand images is rife in many industries, ranging from brake linings to cosmetics. Most of it stems from Taiwan where, dea-

pite increased Western proteata, little is being done to stop it.

Kit Spencer, vice-president of marketing and former general manager of Commodore's UK computer systems division, said that to the best of his knowledge Commodore computers are not being counterfeited.

800k bytes bulit-in tioppy driva.

Add-on storage up to 48
 Megabytes Winchaster.

## IBM to kill off its 'Old Faithful'

IBM is expected today to signal the end of its 3033 mainframe by two additions to the 3081 range of processors. The company is believed to be launching two processors of about five million instructions a second (mips) and seven

mips respectively.
The new machines, half each of the two existing models D and K of the 3081 family, will effectively kill the 3033 range. This extends from just over three mips for the 3033S to nine mips for the

According to some industry MITCHELL . . "Price will not sources IBM has three machines to fall too much." unouoce, with a smaller processor of about 3.5 mips due later.



fabout 3.5 mips due later.

IBM cut the price of the 3033 the old machine to outright purlast November when it launched chase from IBM. The company the 3081 K. The move was de-

the remainder to user ownership and help ensure that they do not come on the market of prices likely to compete heavily with the new to compete heavily with the new announcements.

There are about 125 of the 3033 model in the UK, out of a total of about 2,500 worldwide. The price of s new 3033U (five mips) is just under £1 million. A second-hand machine costs around £600,000. But Parry Mitchell, chairman of United Leasing, a major independent IBM lessor, says that the price will not fall too much. "It has already fallen to antick the salready fallen the salready

nouncement," he says. Mitchell predicts a healthy econd user leasing market for the

3033 for severol years. The machine was launched in 1977. Prices for the new 3081 processors are likely to be in the range of

£600,000 to £750,000 for the five mips machine, code named the 3081B. First shipments are ex-pected in 1983, volume shipments

in 1984. IBM may also announce further software enhancements for the 30gl, saya Brian Burch, director of large systems marketing at National Advanced Systema. "IBM could announce a new set of instructions to speed up the processing of relational data-

bases," Burch believes.

Relational software for MVS could kill the 3033 even earlier says Burch. It will be svailoble only on the 3081 family, running under Extended Architecture (MVS/Xa). All the new machines will support MVS/XA, but the 3033 will not and hence its path to a relational database is barred.

#### 1880 Range of Desk Top Computers from Cifer

The Cifer 1887

whose price has not been revealed, Sir William Barlow, ex-chairman of the Post office and now chair-

oran of the Thorn-EMI Engi-

within the engineering group of

• 6 or 12 Megabytes built in Winchaster Storaga.

132/80/66/40

Thorn-EMI.

256k or 64k Z60A

64k Graphica CPU. 128 or 102 kgy

keyboarda. Compact size. CPIM. MPIM and UCSD ottware.



#### INSIDE THIS WEEK'S ISSUE

ICL enters the personal arena ...... 4 Three-page Peripherals Show preview......20/22 Programmers Page

Downtins by Chad Letters.

People/Diary Nat West auto Sales Bit Crossword soluti

Jobs: Pages 23/45

**'Viewdata** 

double in

6 months'

by Donald Kennett DEMAND for private viewdata

aystems and terminals will grow rapidly for at least the next three

years, according to a study carried out by Logics for Philips Business Systems. Sales now running at 450 terminals a mooth will double the current total of 3,200 in about aix months, the report sales

months, the report says.

## MP slams lack of control over police systems

the police and secret services has been slammed by MP Michael Meacher. Speaking at the launch of a publication from the Edinburgh-based Technical Authors Group (Scotland), I AG (S), Meacher said this week that systems designed to hold vast quantities of personal information were being implemented without appropriate legislation to control

"It has all happened inside the Home (liffice, possibly without reference to politicians," he said.

Meacher says he is open to persuasion on whether various ypes of computer system holding

various kinds of personal information were a good or a bad thing. Hnwever, he was certain that there had been leaks of sensitive personal information from existing aystems, he added, and that there had been abuses of confidentiality. Bribes had been taken to delete criminal records from computer files and false statements had been

added.
Above all, he said, there was no secess for people affected to check on the accuracy of information held on them.

The Scottish research group

msde widely available, Meacher

nighlighted concern for police use of vehicle registration information. According to TAG (S) in its pamplifet The Police Use of Computers, the ournber of inquiries made on the Police National Comrelucles in 32 times as great as the number of vehicles reported sto-

used solcly by Special Branch.
The Technical Authors Group

consists of six people with a mixture of experience in various scientific fields including three data processing professionals, a philosopher, a fish ries experience.

The group is led by Chris Pounder, computer manager at the department of electrical engineering at University College,

Police Use of Computers is speep's first report, and is to be followed by another on defence.

Meanwhile the government's secretive use of computers and the lack of legislation governing them is causing mounting concero. The latest instance to come to light this week concerns the new EEC passport which, it emerges, will be machine readable. The burgundycoloured passport will eventually replace the familiar blue one. Immigration staff at Heathrow

airport, where computer links are being installed arc concerned about the new passports.

They have written s report which has been circulated to con-cerned parties, including MPs, in the hope of bringing further pressure to bear on the government to introduce privacy legia-

The Heathrow workers' fears are that there will be a link between Heathrow and an immigra-tion computer run by the Home Office and the Metropolitan police, in Putoey, South London. The Metropolitan Police already has a computerised intelligence system called the C computer,

which is kept under very tight wraps, but it is believed to cootain information about drugs, immigra-The report further claims that of the 11 reasons why a car may appear on the computer's atolen or

Wilkes Computing

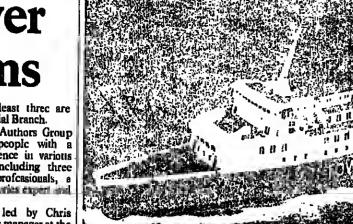
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## **NEB** to reduce Inmos holding to 'below 50%'

LANS to cut the state holding in nmos and bring in private capital are being drawn up by the National Enterprise Board. The NEB, now part of the British Technology Group, has a 75% interest in the semiconductor maker but hopes to attract investors to reduce this to loss than 50% next

Preparations for privatisation are at exploratory stages and will be discussed this summer. A umber of options are open, ranging from a gradual reduction in the NEB's holding to a complete take

out by private enterpriac. The reduction to a holding of less than 50% is seen as a likely first move. Foreign interests will

not be ruled out. Inmos, established four years ago under a Labour government, is backed by £90 million of govern-

ment's present privatisation policy and Inmos' need to expand opera-tions, in the UK or overseas. The money wanted is likely to be over

The company is Britain's hope for competing io the mass produc-tion of semiconductors. Its US factory in Colorado Springs is cur-rently turning out 16K atatic and 64K dynamic random access memorics, and the UK plant at Newport in South Walcs is neduled to atort full scale production in July.

Original plans were for four UK plants producing chips, but indications are that Inmos chairman Richard Petritz new favours expansion into Japan, where the fiercest competition for 64K dynamic

### as NatSemi dives

AS IT forecast a few weeks ago, National Semiconductor plunged deeply into the red in its third quarter to March 7 this year. Such current financial year the company shows a net loss of \$7.6 million, compared to a profit of nearly \$40 million in the same 1981 period.

Sporck also said that while capi-tal expenditure had been pruned for the year, research and de-velopment spending had been in-

quarter to March 7 this year. Such is the depth of decline that the sharply falling profits of the first two quarters have been wiped out, and for the first 40 weeks of its current financial year the company shows a net loss of \$7.6 million, compared to a profit of nearly \$40 million in the same 1981 period.

velopment spending had been increased.

The net loss io the third quarter was \$8.8 million coropared to \$9.6 profit a year ago, while sales were down slightly to \$239.3 million against \$241.7 million in 1981.

Year-to-date sales fell to \$819.9 million compared to \$834.7 million in the same 1981 period. million compared to \$834.7 mil-

lion the previous year, said "Because of our ability to fin-ance future growth . . . we feel that National will return to past restet of financial performance once rstes of financial performance once sale scanning systems, which are worldwide business conditions immarketed in the UK by Hugin.

## BT, Casu co-operate on micro

hy Robert Parry CO-OPERATION between a British microcomputer manufac-British Telecom, has led to the development of a completely new system. Dubbed the Multi C, it is ased on Casu's Super C machine with software already writtan by British Telecom, which will allow several users. The Multi C gives each user —

up to e maximum of six or sevan
his own Z80 processor with
Kamara and parallel port. Printers, hard discs and floppy discs can be shared, the processor in the standard

Super C, again a Z80, co-ordinating the multi-user system.

A four-user Multi C will cost about £12,000 iecluding 20

Mbytes of bard disc storage.
Software to control the multiuser multi-processor system (Mumps) was developed by BT, which will be the first customer for the system. BT already has over 400 Casu machines in use, out of a total of about 1,000 icrocomputers it bas installed Details of who supports the new system, how it is sold to other customers, and how royalties are paid, are still to be fixed.

As well as being a major aupplier to BT, Casu is also on the Central Computer and Telecommunications Agency list of approved microcomputer suppliers to the government. Despite its name the company is

01-861 0121

01-661 0121

01-881 0121

01-861 0121 01-861 0121 01-861 0121 01-867 0121 01-861 0121

081-872 8861

021-366 4836

## brugge. Each workstation on the system provides voice telephony, Prestel, private viewdata, facsimile, telex data and word processing and access to the digital PSS perwerk. Wilmot backs **VME 2900**

Floating '

comms

by Alan Simpson
DEPARTMENT of Industry
funding has enabled the UK to

cstablish a world lead in shipborne computer and communication

systems. This was the claim made for a showcase "clectronic office" Seaview '82 which was unveiled

ast week aboard a Townsend

The system, which was de-veloped by UK systems house CAP in partnership with Siemens

and with close support from British Telecom, Prestel and Townsend Ferries, is based on the

Viking Voyager ferry which runs between Felixstowe and Zee-

Channel Ferry.

by Claire Gooding ICL'a transformation from

hardware manufacturer to aupplier of total systems was given more credibility last week in a key technical presentation by managing director Robb Wilmot.

Wilmot, who has already underlined software as the key to ICL's recovery, asserted that the VME operating system is far from the millstone many in the industry have judged it to be.

But he speculated that VME may be the last new development of an operating system for any mainframes in the industry, since the process is too long and expen-

sive to be undertaken lightly.

VME's long period of teething troubles has brought it a bad reputauen. Since Wilmot's rationalisa tion of development effort for the company's operating systems cutting out VME/K and the entry level VME/B-E, the system has emerged as the vehicle to take ICL forward to the era of networking and applications which are gener-

ated rather than built by band. Wilmot has had VME 2900, as it s now known, vetted by two teams of independent consultants, and says that their findings bave not only given it a clean bill of health but generated some excitement about its potential. He is now determined to make the most of the operating system as an asset worth

the money spent on it.
"£100 millioo later we have arrived - it nearly didn't arrive at not Japanese. It is named after managing director John Flood'a daughters Catherine and Susan.

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## **Leading DEC** supplier doubles sales force in shift to end user

f disc and tape subsystems to the Digital Equipment market is shift-ing its emphasis in Europe from OEMs to end users.

The move will mirror a trend already established in the home US market of the company, System Iodustries, and will lead to a douthing of its UK and European sales

With the stated intention of selling the largest amount of disc storage possible for big PDP-11, particularly VAX, systems, Steve Hamerslag of System Industries says the company will have a onegigabyte drive available by the end of this year, and two gigabytes will be the oorm in two years.

Hamerslag, who has been scot from the US to direct the change to end user marketing, says the com-pany is not interested in the mar-

System Industries' smallest drive is 67 Mbytes, and Hamerslag says "soon the mini version will be like disposable razors - cheap enough to throw away."

Plans to market a fail safe system, including central proces-sor, for the DEC market are well

be made in July. Called Simon System Industries Multiple Option Network, the systero will be based on software developed for existing

It builds oo the company's dual data path systems. The "add-on versed in Europe, but changes in the atructure of the European comnon-stop reliability systems", which Hamerslag says will be the "Tandem computer of the DEC world," provide redundant data paths between each computer and

To promote the shift, David Scaman has been taken on from cach diac drive.
In the US, System Industries is Systime as European sales man-

already producing 70% of its revenues from end users and 30% from OEMs. The figures are re-

pany are already in place to shift the balance.

Worldwide revenues for the year ended January 3 were up 66% 10 62,900,000, with after-tax income from continuing operations up 131% to \$4,523,000. About 30%

Europe, and roughly half of those from the UK. Forecasted are £100 million.

He expects laser discs to take up half the world mass storage market by virtue of their use for historical Looking to other future de-

**EXPANDING THE** 

FRONTIERS OF TIME

velopments, Hamerslag seea no

threat from bubble memories or

charge coupled devices, except in

cost per byte is now about 5p com-

pared with 1.6p for large hard disc

tages — such as the difficulty of making key-word searches, the limited number of words that fit on a screen and the poor quality of hard copy available - applications are identified for which viewdata has clear advantages. The advantages are based on the

and the ease of setting up an

changing e databass.

Jack Gee writes: France's first videotex network for handling supermarket chain orders bas been Installed by the Viniprix group at 50 stores in the Paris area.

Viniprix is using Minitel term nals of the type used for France's electronic telephone books. Store managers will use the terminals for placing orders with the group's purchasing centre.

## BT £20m contracts go to IBM and Philips

national telecommunications net-work and add System X facilities have been placed outside British Telecom's usual British-owned

suppliers.

The contracts, to provide "Star services" such as call diversion and itemised billing on British Tclccom's TXE4A computercontrolled telephone exchanges, have been awarded to IBM and Philips. The Dutch company, through its TMC division, is a previous BT supplier, but this is the first time that IBM has sold

Most of the equipment from both suppliers will be made in

The exchange was developed jointly by Standard Telephones & Cables and BT. International tenders were invited last October from II companies when BT thought that STC's estimate of the time and cost necessary to enhance the with a very good chance."

The winning bids are based on a "black box" add-on hardware approach, despite the fact that the TXE4A is stored program controlled and could be thought to be easily sitcrable. However, this approach means that the carlier TXE4 hard-wired version of the

exchange could be the aubject of

future enhancement contracts. The present contracts are for about £10 million each and will cover a total of 200 exchanges b fore the end of next year.

The black box is designed to line and the switching equipment, so if the services prove popular the two companies could end up earn-ing much more than the initial cootract value. The enhancement is part of BT's plan for introducir System X facilities in advance the System X network itself.
An STC director said

"Naturally we are very diap pointed. We thought we were is

### Quirky output baffles big mainframe users

THE problem of constructing accurate benchmarks for very large mainframes has again become apparent. This time a Danish user from our daytime processing, plus has encountered quirky perform- or minus one mips on average, bu ance characteristics with the we have measured extremes of up National Advance Systems to 15 mips right down to four or

LEC, the government data entre responsible for co-ordingting agriculture in Denmark, claims that intitial processor utilisation on its 16 Mbyte AS9000 was unimpressive when it switched over from an IBM 3033.

closer to ten mips because we run batch jobs from 5 to 11 pm which gives us our peak load."

LEC is taking delivery of a 16 Mbyte IBM 3081 in May. "We have a big load coming up in the autumn, and although the A\$9000 is handling additional terminals at the rate of 50 s month, we do not want to take the chance of finding Although it has not yet improved materially, LEC has been able to keep adding terminals with oo degradation in response time.
Anomalous performance of this sort has shown itself characteristic

sort has shown itself characteristic of the latest generation of majorames in the IBM 3081 class, with many users reporting initial failure to reach expected design ratings.

LEC's 3033 supported about 700 terminals. When these were hooked into the AS9000, performance lingered at an average of 7.5 million intructions per second. But when LEC passed the 1,000 terminal mark last November, performance did not tail off, remaining stanting attentions the maintain action to take the chance of finding want to take the chance of finding the limit later on."

The two machines will be locately subsystem software, JES2, allowing them to share disc and tape storage.

According to Klausen, LEC acquired its AS9000 because it was uncertain about the 3033's ability to run IBM's CICS teleprocessing monitor software in a multiprocessor configuration.

loaded. Our overall load is 65% to

70% with three or four daytim

peaks, but in the evenings we get closer to ten mips because we run

The concept of The Tardis an 'expandable' time machine -

was pretty revolutionary when it first appeared on our screens in 1962. The STC range of disk drives is as revolutionary today and will continue to adapt and expand, as you would expect of any machine

equipped for the future. Designed to balance the capabilities of your processor with your peripherals each of the disk drives in this advanced range offers distinct capacity, speed and cost advantages.

The 8650 for users needing extra capacity – this dual density device provides 635 M bytes with 23m/secs seek.

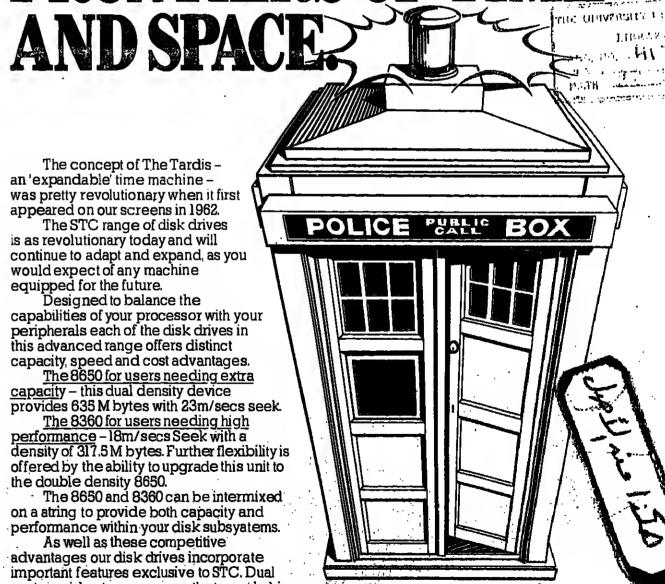
The 8360 for users needing high performance – 18m/secs Seek with a density of 317.5 M bytes. Further flexibility is offered by the ability to upgrade this unit to the double density 8650.

The 8650 and 8360 can be intermixed on a atring to provide both capacity and performance within your disk subsystems.

As well as these competitive advantages our disk drives incorporate important features exclusive to STC. Dual port provides two access paths to each drive increasing data availability. Dual electronics and media interchange switch will provide alternative means of accessing your data in the case of disk failures.

If you are looking for ways to increase the performance of your processor take a closer look at STC.

We offer peripherals to enable your system to stand the test of time. And the service to match.



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McDOUGALL . . . "More complete product line than DEC."

### Micro versions of DG Eclipse at half price

Real graphics needn't

cost the earth

WESTWARD IOIS a district and

DATA GENERAL has developed two micro versions of its Eclipse ·16-blt minicomputers, trading a slight drop in performance for a substantial reduction in price. The S/120 has a "sniffing" facilnew machines are claimed to provide 70% of the performance of the Eclipse S/140, use the same instruction set, but cost only half as CPU overhead.

cal instrumentation.

Compatibility with DG's range
of Nova and Eclipse machines is

Don McDougall, director of marketing and acting general manager of TPD, said, "We've got a more complete product line than DEC — we're going to keep them

£19851

that as a professional gas this dealth net costs life more

than an ordinary VDI, I Built in Britain the IUIS offers at the

features you expect formary activity activity features featured to predict

with a tendustra encountries still continue and number

Support for head ropy, tablet and posticly regions

Software compatible with Telegran 4012". GNO" or PLOT 10"

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Attaches Way Acta burch Tradeshary Gloudesteethire GL208BN

A step in the right direction

Lie and beatleans on the Date Burger of Carp and

groups a later of the state of

Screen adjustable for young angle and till "

640 x440 vewskie iesolulum

15" P3I preemplic spher lube

level microprogramming, 500 na-nosecond store cycle time, instruc-

The new systems have their own teractive and compiled Pascal are operating system and are aimed at real time, multiprocessing applications such as industrial process or Advanced Operating System), control, data collection and mediators are such as collection and mediators. screen editor and debugging aids. MP/AOS can support up to 16

concurrent processes, involving The S/20 compares with the DEC PDP-11/23, and the S/120

## ICL cashes in on a Rair success with its entry to personal market

microcomputer maker Rair's founder Mark Potts, is rapidly becoming one of the most widely used machines in the systems business — not least because it countries. ness - not least because it comes with a 514-inch hard disc incorpo-

on, says that the incorporation of the disc removes one of the biggest constraints of all on small business ystems. Without a hard disc, you wind up with a string of floppy discs, or even a program which has to be loaded in modules, according to Omicron director Vince Wells.

The Rair machine as sold by Rair is based on the Intel 8085A processor and runs CP/M and the full range of CP/M supported languages including Basic, Fortran, Cobol, Pascal and PL/I.

Mark Ridgeway, manager of ICL's Trader Point operation which will be responsible for marketing the Rair/ICL system, says that ICL went for Rair because of

Ridgeway comments that six months is a lifetime in this business. Looking at iCL's own reasons for going in the direction of a personal micro, he says that it was to help increase the productivity of the direct sales force.

He reckons that there is a threshold value of about £20,000 to £30,000, at which direct sales are

sales force, according to Ridgeway, and will be concentrating on sales in the region of £4,000 to £8,000. He anticipates much higher volume sales from the operation. Systems houses are in ousiness of adding value and aims to offer a product which increase the opportunities for

by Kevin Cahill

ICL's choice for its entry next week into the personal computer market is proving a very sound

He reckons that with so many other CP/M machines about, ICL bilt machine to run MP/M. (MP/M needed one which was state of the art in terms of facilities for the aystem specifically intended for

For the time being, however, ICL, via Trader Point, is going after the two-screen market which is readily supported by the 64K configuration and existing Rair

The system ICL will be provid-ing will serve a maximum of four screens, but without networking facilities. Ridgeway expects the system to retail for about £6,300, to include two screens, a 25 character per second printer and the MPM/2

However, Ridgeway expects dealers to set the price working; from a basic list price supplied by

He sees the main problem as getting the right kind of dealers for the company, selling the right kind of products - specifically ICL 

terested in the operation to get peripherals moving — preferably ICL-bullt nnes, according to



## People launched

project, Prestel for People, is a cards if they do not sutomare, says

Launched by the Social Involuntary bodies, non-profit organisations and government agen-cies, the project involves 40 Prestel sets with public access in three Kingston-upon-Thames and Gateshead and Newcastle. it will be

managed by the Consumers' Association. The project has financial backing of £65,000 from the Department of Los,000 from the Department of Industry, and Prestel is giving support by waiving some of its charges. Radio Rentals, Sony UK and Philips are providing equipment free.

Prestel sets will be installed in places where results in the control of the control

places where people go in the ordinary course of their lives, including Citizens Advice Bureaux, Jobcentres, large stores and local government departments.

## Prestel for People \*Computerise, or credit while the Digital Speech Interpolation terminals transmit only "voice active" telephone conversation to the antelline card frauds will rise'

As its own insurance, Visa bas formation Providers, a group of announced a worldwide programme to install computerised card authorisation systems at ten member banks in Europe, the Middle Bast and Africa. Joao Riberro da Fonseca, chief

general manager st Visa Interna-tional, said: "Credit abuse and stolen cards are on the increase. We are currently experiencing a loss of 0.6% on card activity, but there is a risk that this could grow rapidly.

"If the challenge cannot be met,

been precipitated by REC policy to liberalise its PTTs' monopolics on telecommunications services and equipment. It has surged ahead of American Express which has been installing equipment based on leased lines at a much alower rate

Visa's terminal specification requires the use of conventional dialup lines and a maximum connec-

tion time of eight seconds.

Although Visa decided to go it alone in its computerisation programme, it has designed the terminal specification so as to accept cards from other credit organisa-tion with such transactions passing

mrough the systems of the member banks.

The terminals are supplied by a number of telephone handset manufacturers, including Racal authorisation system. About 17,000 telephone-like, terminals launched a device called the have been installed in the US in the last year alone, and Visa ex- £450 and £500.

## SALES BRIEF

#### Spanish local govt buys System Tens

SPAIN has proved fertile soil for ICL, which has secured orders for nearly £250,000 for System Ten, System 25, and 9500 point of sale equipment. Two system Tens and a 25 will be installed in local government offices and town halls in Marchena, Olesa, and San Fernando, with total value over £100,000.

supply company within a government owned group, is spending £75,000 for a System Ten and terminals, and a large supermarket chain in Cadiz is installing £60,000 of PoS equipment.

#### Min Ag upgrades

THE Ministry of Agriculture is upgrading its Computer Technology Ltd Modular One computer to a CTL 8066. It will be used at the Plant Variety Rights Office and Seeds Division at Cambridge.

#### £200,000 to start

GOVERNMENT backed Date Recording Equipment has won £200,000 of business from MCS Mini-Computer Systems, which has ordered 200 dot matrix printers for its Micos small business computers, Purther orders are expected to follow. The product involved is the DRE 8000 family, which has speeds up to 240 characwhich has speeds up to 240 charac-ters per second, variable print densities and character sets, and a choice of paper handling mechan-

#### For Hong Kong

BANKING terminals to provide teller automation at Hong Kong and Shanghai Bank Group's UK branches have been ordered to the tune of £250,000 from Philips. Installation of PTS 6000 banking terminals will take place this year, and represents the second phase of the Group's UK automation programme. The first phase involved PTS 6000s for foreign exchange dealing.

#### Satellite signalling ADVANCED digital signal

ADVANCED digital algnsi processing equipment for British Telecom's satellite communication networks will be supplied by DCC of Dunstable. The £2.5 million contract is for the Madley earth station which serves Intelsat and Butelsat. DCC will supply TD-MA/DSI terminals and related services. The Time Division Multiple Access terminals will allow the Madley earth station to access a satellite on a time sharing basis,

#### Datapoint switch

by Boris Sedacca
THE mention of information technology will soon be greeted by nore than blank looks, if a new roject, Prestel for People, is a recess.

by Boris Sedacca
THE credit card issuing organisations face the risk of exponential growth in the number of stolen cards if they do not surpress are recess.

by Boris Sedacca
THE credit card issuing organisations face the risk of exponential growth in the number of stolen cards if they do not surpress are receiptisted by REC notice to the results of the surpress and the University of Manchesting at the Un which will report record computers, Data General minis, and an iCL mainframe. Total investment in Datapoint systems during the three year programme will be some £400,000.

## Liberals' Princes

DIGICO has sold two Prince microcomputers to the National Liberal Club for accounting, word processing, and mailing lists. Value of the order is some £10,000.

#### Telex contract

## France asks US firms to finance £560 million components drive

by Jack Gee
LAST week's pledge of further
government support for UK information technology, has been matched in France by plans to inject large sums of money to turn its

ance the £560 million five-year programme even though it is the US and Japan who currently domi-

The French government wants which provide technology for components ventures with French firms, to supply

The Next

One is

a Logical

successor

CASHING in on the publicity which brought The Last One to the public eye, Logical Computing of Southampton has called its own program generator The Next Onc.

Oc. an application program gen-crator, appeared in the national Press in May and June last year, when the developers, DJ "AI" Systems claimed it was the last program anyone would ever need to buy. A storm of contravers

to buy. A storm of controversy followed shout whether The Last One actually exists, because no one in the UK was able to obtain a

copy of the software.

Managing director of Logical
Computing, Steve Walker, Is not
worned that his product will be
associated with this problem.

"It's just a joke really. We're not
claiming to make pages.

The Last One is now available

from Tandy dealers and, according to DI "AI" Systems provides and

keiing arrangements have been

BTG £20m for

assisted areas

the next two years, concentrating funding on new technology, particularly hardware and software.

by Kevin Cnhill

wipe out a current trading deficit of 600 million francs (£60 million) in microelectronics within four

The government wants to reduce the existing partnerships with American firms, which account for three of the five State-sponaored components.
Thomson-CSF, Saint Gobain-

Pont-à-Mousson and Matra are the French firms involved with Harris, NatSemi and Intel. The French authorities dn not wish to reduce American technical participation but in slim down the number of France-American

Thomaon-CSF, CII-Honeywell Bull and Matra in a more coherent

with the performance of the computer components industry which last year produced a turnover of I1.3 billion francs (£1.1 billion) only 5% higher than in 1980.

There are 50,700 French workers invalved in making with 53,820 a year ago.
Under the first five-year compu-

ter components plan Isunched in 1976 by President Giscard d'Estaing the government made an investment of £750 million francs with the balance from the firms

money as well.

Industry Minister Dreyfus
wants microprocessors to play a bigger role in the production of French cars, mudio-visual equip
groupings.

A key nbjective of this five-year plan requires the government to provide 480 million francs (£48 million) for resources of computer makers 1982 alone.



automation market. According to company president Hakan Ledin, Ethernet is at best an interim solution to office communications. Ericsson was supporting it because it could become a market standard. But user

among the leaders in the office

had available by all the staff who product line will be an upgrade of Ostasasb's Alfaskop terminals and The resulting reorganisation of Bricsson's new digital private branch exchanges. But many other products are in the pipeline includ-

autonomously with company data-Further into the future, EIS sees Wideband communications optical fibres as the appropriate medium to support the huge band-widths it believes will be necessystems will enable front-line

COMPUTER WEEKLY, March 25, 1982

workers - those actually producing the goods and services and those meeting the customers - to To overcome the usual objection draw on as much information as they need without having to refer to optical fibres in local networks to back-up supervisory and clerical

- that the medium must be broken at each mode to get signals on and off through an electronic in-ElS aims to offer consultancy oo sert - Ericsson is developing an information structures and to asoptical logic element to provide sist in planning strategies for reor-

## First-time buyers are more discerning says DEC distributor

"It's just a joke really. We're not claiming to make programmers tedundant, just that The Next One will write all the boring bits, such as I/O commands," he explained.

The Next One is considerably cheaper than The Last One, costing only £50, and is aimed primarily at the scientific and engineering market. Walker says that for £50 the user will get both documentation and support.

"I'm also hoping to update it with feedback from the user," he added. "I ask people for any improvements and if they come up with one they get a free copy of the

EVIDENCE that first-time computer buyers are accepting that the chespest is not necessarily the best is being found by Alveronica, the Hull-based Drgital Equipment OEM.

Alveronics is one of eight DEC authorised commercial OEM distributors in the UK, and the early dividends it is getting from the programme has encouraged ambitions to expand its sales Most of the new interest has

Apple in the UK. Walker has approached his local Apple dealer but says that so far "they have only made noises", and no definite marketing arrangements have been coming from consultants, rather than end users, who ace sense in Alveronics' package solu-tions, which include everything from applications software to 12 months' maintenance, down m stationery and printer ribbons. As well as general commercial ac-counting systems, the company is branching into vertical markets such as hotel reservations, bakery control, high fashion retail trade and word processing systèms. THE British Technology Group is to spend an additional £20 million in the English assisted areas over

Alar Coates, managing director of Alveronics, says, "We are getting over the hump of those looking only for the cheapest. More people are ready to pay for quality."

chilarly hardware and software.

The investment will be in collaboration with private bodies, two of which have already been announced — one in the West with in Devon and Cornwall, and the ling Enterprises in Liverpool.

I looking only for the cheapest. More people are ready to pay for quality."

All Alveronics' application software.

All Alveronics' application software.

All Alveronics' application software.

All Alveronics' application software in Dibol, DRC's which 50 to 60 will be PDP-11s, in the next 18 months.

Growth, in both net profit and turnover, will be at a level of 40% per annum, Coates says, with earning ing now running at 10.8% of sales, Turnover in the year ended been one of the few Hurting test.

Coates says, by "getting us into the front end in developing application products." It also allows Alveronics to make suggested changes to the latest release of compilers which can bring the most out of its own software products.

release ensures a growth path through the range of DEC equip-ment, with a high degree of compatibility across the differen operating systems, including CTS300, CTS500, and MVS. It also allows Alveronics to maintain a single source listing for software products that range from the 12-bit PDP-8 to the 32-bit VAX. That, says Coates, takes away the opera-tional cost of moving from one

system to another.
Alveronics, which began as technical services company, has installed some 150 DEC systems, of which just over 90 are PDP-88 and the remainder PDP-118. Its

# No doubt

FIREBERD 1500 Data Error Analyser. The new, lightweight, portable FIREBERD 1500 sets a new standard for

data error analysers, its microprocessor-based circultry provides a range of features unparalleled by any Six error analysis functions - bit error

rate. bit errors, block errors, blocks, error-seconds and total seconds. Six atandard internal clock rates - 1.2, 2.4, 4.6, 9.6, 19.2 and

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WE'LL GET YOU THROUGH

## Arch-rivals united in tribute to a booming industry at the annual ICP awards ... Maggie McLening reports

## 'Million' honours for **UK** software houses

Hotel, where the second ceremony to be held in London took place. Graups from arch-rival British software houses gathered to drink oasts to "the demise of American software companies", and the only competitive talk revolved around he number of awards won.

This year the list of winners had grown intimidatingly inng, with a otal of 808 products nuw surpascompanies whose products had evious years, such as Micro Pu-

reached aggregate sales of one million, five, 10, 25, 50, 100 and 250 million dollars sines its introduction to the marketplace.

lion award was crested for and won

Drinking to the downfull of US suftware (from left) John Priestley (Hoskyns), Geoff Griffiths (Arbat), Stan Smith and Keith Williams (BIS Software) and Richard Willott (Hoskyns),

Pertec TrakStar<sup>™</sup>

8-inch Winchester drives.

a new family of

Megabyte capacity for the systems of the 80's.

Superb design innovations make the Partec TrakStar tarrity of 8° Winchesters a first class drive for Isrsiness and word processing OEMs. Available now TrakStar delivers the high partitivenance, capacity and reliability OEMs are looking for the compact, low-cost package TrakStar models offer capacities of 33, 67 and 84 megabytes so you can select the right size drive for your specific needs ... scortomically, without compromise.

TrakStar offers ANSI standard interlace to provide

Irak Star often ANSI standard interface to provide ease of integration, using industry-supported controllers. The rotary vocas collegations, hardysoft sectoring and an G-inch floopy form factor are part of Pak Star's urique combination of features that sat it spart from the others.

spart from the others.

Heads, disks and positioner are in the clean scaled soution, with an unsurpassed 25,000 hours MTBF. The find-repincoable electronics are located outside at the scalen section, so that down time is writtally eliminated.

TrakStor is the proud result of Pertec Computer

Corporations commitment to perfecting technolog And it has a lot more to offer because it's backed by the industry leader in OEM customer support.

winning an award for the first time were Dataview for the popular Wordcraft word processing micro package, Logica for Rapport, the relsoonal database management system, Quantime for the Quantum survey and data analysis package, and SIA for its Female finite element modelling package. These were all in the \$1 million estegory.

This group also saw rompanies adding new products to their list of previous awards, such as Macro 4 with its System Accounting and System Manager 1BM-compatible

Micro Focus increased its al-ready creditable score with million-dollar awards for the CP/M version of CIS Cobol and Level II Cobol, while Northern Suftware Consultants added an award for its

For the hull story write for the new frekSter Alexature to

PERFECTING TECHNOLOGY

Last year's British star Altergo was still in the limelight with awards in the \$5 million (for Guts), \$10 million (for CPG) and \$25 mil-

sented in the higher award cateories included Pansophic cted an award for the Cyborg Systems payroll and personnel system, which its subsidiary, PPL-Cyborg, has just sold to 20 com-



awards for banking products KIBS and MAS-M, and two of the Super

in banking BANKING software was, as al-ways, heavily represented in the ICP Million Dollar Awards. The "big three", Arbat, BIS Software and the Hoskyns Group, coroered ten awards between them at vary-Of the three, Arbat collected the greatest number: one for its Money Transfet System, and two for US and European versions of the ABS banking system. It also walked away with five of the Super

#### 1st woman winner

FIRST British woman to win a Super Software Seller Award was Jane Simmon, of the Hoskyns Group. The accolade goes to an individual salesperson who makes \$1 million sales of one product.

Simmon won the award for sales of MASM, a modular applications turnkey system for microcom-puters, which runs on DEC PDP-11 and VAX machines.

change has changed for the worse since last year, but we still came in with some to spare." Hoskyns Group collected twn \$1 million Simmon joined the Hoskyas Group as a graduate programmer on leaving Essex University in 1977. She entered the de-velopment team of MASM, and side of the project. "You might say 've grown up with the product,

In 1980 she started doing sales support work, which in turn led to a permanent post in marketing.

One of the few other women to take an award was Effrabath Shaw-



Big three

corner 10

Seller awards to individual

salespeople: one each for Arbat Consultants' Michael Evans,

Roger Felatead (for aelling in the Middle East) and Malcolm Vickery, on top of those won by Mark Lobene and Tom Tomlins of Ar-

The highest award for a banking

system, a \$25 million award, was

won by BIS Software for its Midas

internstional banking system, Stan Smith, BIS marketing manager, joked: "The dollar rate of ex-

lar award was Quantime, set up only three years ago. It has achieved an impressive 50% of its El million turnover from exports.

Specialising in software for market research covering both agencies and government departments, Quantime exports to West Ger-many, Holland, Australia, New Zealand and the US. Sales of the

Quantum survey and data analysis package, which brought the ICP sward, were 75% overseas.

Marketing director Mark Katz commented "This reflects the international nature of the ICP award."

Quantum currently runs on

The majority of sales are to contractors like John Brown or Ralph M. Parsons which build oil portable timesbaring operating system, although the company has hitherto avoided micros.

"We think that it is with the new generation of I6-bit micros, running the Unix system or its de-

## What lets you avoid unaffordable risks at an unrefusable price? MOMENTUM

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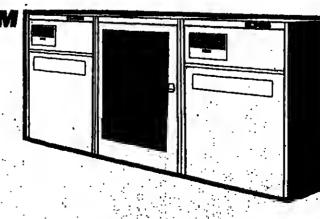
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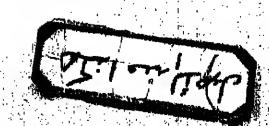
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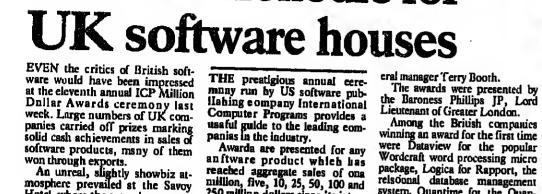
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an I I Information Technology Campuny



Further awards are made in the ICP Super Software Sellars eate-gory to any salesperson who has individually sold one million dollars' worth, or more, of software

products for the current year.

at a higher level.
The newly introduced \$250 milby Cincom for its highly successful Tutal database management

BOOTH ... Collecting a unique \$250 million award for Cincom's

Nor-Purla mainframe purchsse ledger package to last year's Nor-Sal sales ledger.

million section, RTZ Computer rvices won an award for its G/L lua general ledger and financial on ICL machines. At the micro end, VisiCorp scooped four for its VisiFile, VisiTrend/Plnt, VisiDex and Desktop/Plan micro systems,

Seller awards. Geoff Griffiths, marketing manager for Arbat, attributes British success with banking software abroad to the high standards set by UK companies, "British software is the best in the world for banks because we put far more effort into understanding the peculiarities of providing long-term solutions.
The UK has such a sod resutation for this within the banking industry, it makes it much more difficult for other companies to make any inroads," he explained.



Three-year-old firm exports 50% ONE of the youngest software houses to win an ICP Million Dollar award was Quantime, set up there is also a DEC/VAX version. Another winner with a high proportion of export sales was Davy Computing, which won a \$10 million award for its Cootrol Of Material Planning and Isometric Drawing (COMPAID) pack-

According to managing director Ed Ross, there are plans to extend the system into the 16-bit age, relating mainly to plping microcomputer market, with a version to run under Unix, the

running the Unix system or its derivatives, that the hardware and software will come of age, and begin to provide the reliability and facilities that makes widespread use worthwhile. According to project manager Fred Baines about 90% of ilcance sales are abroad. There is also a high percentage of bureau users of the system in the UK, US, Canada and France.

## Software houses in the dark about govt aid for exports

majority are unaware that it exists.

Set up for an experimental year, Export! T has been promised £250,000 from Department of Industry funds to establish an international trade association, supplymarkets to British companies.

'We are attempting to act as a catalyst for exporters and overseas buyers by telling people about the opportunities available, "ex-plained Lionel Woodcock, a con-sultant working for Exportl T.

"Typically, software houses are fairly small and their attention is not drawn to exporting. We aim in

Director of ExportiT Bill Wells, an occountant by profession, hopes to attract all aizes of technology company into the scheme. A ques-tionnaire was sent out to 450 potential participants, asking details of current exports and apecialist areas, but only 100 replied.

than an icebox

Easier to maintain

on the DataPro Research

surveyed Panvalet, library

ratings survey.

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Out of almost 4000 installations

Corporation's latest software user

management and control system

and information retrieval system.

were in the top 4 most widely

Based on nine separate

and Easytrieve, data management

reported systems software products.

evaluation characteristics, ranging

than an Hollywood

sult.
"I think it's a very good response, and I'm delighted with ExportIT's progress in the three months it's been going," he com-



BYEIONS . . . Busy working on

Doug Eyeions, chairman of the Computing Services Association up as "just another sleepy trade does not coosider this a pour re-association", saying: "I certainly

than a fruit machine

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EASY I KIT VE and I ANVALET The user's choice

from reliability to overall satisfaction,

both Panvalet and Easytrieve were in

the top 19 packages rated highest in

so high in the charts complete the

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in Caesar's Palace.

Despite enthusiasm by official bodies such as the CSA and NCC, details of the scheme do not appear

ing Council and I are both on the

to have been widely publicised.
Richard Smith, director of
Micro Products Software Ltd (MPSL) said that he had oever heard of ExportIT and expressed

Whatever they do will only be effective for someone starting up from cold," he commented. "And

I certainly think they should publicise it x bit more."

Software house Macro 4, suppliers of IBM compatible software, also had reservations.

"I have severe doubts about whether the government is in a unit to the US and Europe.

"We are certainly interested in the Singapore and Malaysia aspect," commented Roy Taylor, chairman of Package Programs Limited (PPL), adding that he had only beard of the scheme "by chance".

don't get much sleep — I'm too
busy working on the scheme.
We're 100% behind it, and I am
helping to organise things. David
Fairbairn of the National Computcause they put more effort into it." mouth through the trade. The best people as contacts for exporting are small companies or individuals who are hungry for business, be-

Keen Computera, which is now expanding rapidly in the US and Europe, said it might have been interested in the project had it known about it.

year, but I've not heard of Ex-portIT," said John Clarke, the company's sales manager.

Companies which have become

involved in ExportIT are enthusiastic about the work in hand for covering Japan, the United Arab Emirates and Singapore in addi-tion to the US and Europe.

More efficient than a Greyhound bus.

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وتنت

than the US

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## Paper round speeded

newsagents buying the Newsround system from The Computer Room systems house in Tonbridge.

One of its main features is the compilation of lists of publications or customers which are given to newspaper boys for their rounds. This eliminates early morning marking up of papers, and speeds up re-organisation and accounting

THERE should be no excuse for when we were designing the late newspaper deliveries from system, and they all said that there this area of business very well,

> ager of The Computer Room. To help solve the problem, TCR chose the high-speed Anadex DP-9500 dot matrix impact printer, producing up to 200 cps, for the system which runs on a Superbrain

Hardware costs are around £3,500 for the system and the cur-

## Pet package protection

outer software package to protect Manchester-based Mektronic

onsultants has released a software rotection package for the Comnodore Pet to sup unauthorised access and copying of programs.

Called Safeware, it consists of a small hardware unit that plugs into the Pet user port and a software interrogation routine that checks

for the presence of the hardware device. The software routine, which is written in Basic, can be placed anywhere within the user's program, and inhibits use of the program if the hardware unit is

"It's rather like the dongle for the Wordcraft package," ex-

plained David Walker, projects co-ordinator for Mektronic Consul-

Safeware costs £19.95, and users are allocated a unique code for each application or commercial software package. Additional hardware units for customers can then be aupplied separately for

And to protect the Safeware package itself from piracy?

"We are supplying people with a means of blanking out the interrogation routine for the Pet," said Walker. "The Autorun facility also helps because it starts the program running immediately it is loaded, making it difficult to break

#### SOFTWARE BRIEF I **BBC** spin-off Rental aid

a 'best seller' OVER 60,000 copies have now been sold of 30 Hour Basic, the follow-up book to the BBC's Computer Programme. The National Extension College in Cambridge which published the ing response" to a apecial group training scheme it has set up.

#### **Business system**

RECENTLY introduced into the education sector, the Positron 9000 microcomputer is about to be launched as a business system. This will bappen as soon as Posifron has found some business ap-plication software to run on the OS-9 operating system, which has many Unix-like features.

#### DP seminars

SERIES of software education seminars are being held by consul-tant Frost & Sullivan. Aimed both at DP staff and users, topics cov-ered include teleprocessing soft-ware, packagea, information

aystems and security.

Seminars last for three days and will be held from the end of April

#### Payroll on CP/M

A COMPETITIVELY priced payroll package for CP/M users has been released by Open Computer Services, the Brighton-based software bouse. Costing £750, inclusive nf a year's maintenance, the Open Payroll also offers as the Open Payroll also offers an integrated database for personnel ad payroll Interrogation by users.

A PACKAGE aimed at improving profitability for TV and video ren tal companies has been developed by microcomputer software specialist DRG Busicess Machines. Designed for use on DRG's Cadn equipment, thr system includes the ability to pinpnint loas-making agreements, produce reminders for late

#### £5m market

PAYROLL package Unipay has won its twenty-fifth UK local authority user, Ogwr Berough Council. Potential of the local authority market is estimated at £5 million over the next three years, and Peterborough Software, developer of Unipay, plans to increase its current 10% share of the market, according to Tony Bews,

#### Travel bureau

COMPUTER group Gordon & Gotch bas signed up its first central London client for its Transit travel system. Dawsoo Brothers Travel is to use the bureau system, which holds a central file of additional tickets and allocations, from which other financial analyses.

#### Apple package

SUPPORT for the Apple III microcomputer as a workstation on the Cluster/One local computer network has been amounced by Zynar, of Uxbridge, Middleser. Zynar's Apple III support package allows for local hard disc storage, with Apple'a Profile 5 Mbyte unit, as well as ahared 20-40 Mbyte dises.

#### MICRO NEWS

## Transputer CAD system scores

CMOS booms, dRAM

prices drop-report

panese domioation cantlaties, while drastic price attrition keeps potential market entrants bovering on the sidelines.

In the other area of transmitted in the review, the US 64K dynamic RAM market, prices are reported to have plummeted from \$45 in the third plummeted from \$45 in the t

Technologies Microelectronics as least) to defer production and having one of the most ambitiously await developments in the mar-

around \$30 million over the next tified, excluding manufacturers few years to gear up its Coloradn like IBM and Western Electric

INMOS is still reticent about de-tails of traosputera, its long tails of traosputera, its long tional systems like the Calma equipment also used by lumos in about the design tools developed to bring them into being by 1984.

Built up over the past eight mooths, the CAD system is in admos believes, and echoes the in-creasing complexity and interconnection of the components

It will be used to design.

Expected benefits from using it are being able to get rid of repeated design iterations and having confidence that when a chip is designed

Transputers, a name coined by Inmos' Iann Barron, will be VLSI building blocks for applications like fifth generation computers. The key stribute will be amplicity of implementation, says Barron, achieved by rethinking processes. Inneres and control of the says and cont chip with high performance

According to Barron, the Immos

semiconductor markets - CMOS gate arrays and 64K dynamic RAMs.

statistical review from the US Semiconductor Industry Associa-tion, US sales of CMOS arrays

doubled to \$50 million in 1981 and are expected to climb to \$450 mil-

lion by 1985. In 64K dynamic RAMs the Ja-

in the CMOS array market,

numbers of suppliers have blos-somed, increasing from eight in

1978 to 29 at the end of last year as

new companies joined the fray. Established suppliers are allocat-

ing large sums to product de-velopment, CAD automation and

The review cites United

financed programmes in the gate array business. It will invest

around \$30 million over the next

The numbers of gates on devices is rising along with the money spent. LSI Logic is reported to oller the highest density array, with 6,000 gates, and International

of microprocessor development systems

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extending plant capacity.

the integration of the various tools lation and design rule checking for

chip layout.
Usually analogue simulation at circuit level is a long process. The Inmos system gets round this by only simulating part of the chip in full detail, while simulating the rest at the logic level. This allows the simulation to be performed inthe simulation to be performed interactively rather than as a batch

process.

Design rule checking - making sure that festures like transistors and areas of metal for interconnects are laid out with appropriate sizes, shapes and spacings for correct functioning - is also interac-

checking is normally done as a post process on symbolic layouts to give the actual device layout.

The system currently works on octagonal shapes, allowing 45° angled lines, and a grid resolution According to Barron, the Immos corresponding to ¼ micron on the CAD system, running on three VAX mainframes at the Bristol de-

1981 sales volume, has now an-nounced an 8,000 gate CMOS ar-

ray. It will accept orders in July, and charge \$54,000 for chip de-velopment which will take 14

plummeted from \$45 in the third quarter of 1980 to \$7 at the end of

1981. As these are average selling

prices, and high performance

Inmos) attract premium prices slower chips in large volumes wil

cost significantly less.
This has caused several possible

market entrants to back off, the

review says, and driven AMD (at

ketplace.
This year 17 suppliers are iden-

"The SIA quarterly statistical review is available in the UK from IP1, 134 Holland Park Avenue, Landon WII 4UE. Tele phone 01-221 0598.

Central Scotland 0501 43182 Aberdeen 0224-25301



ules are checked for all replications throughout the chip, so that changes to one part do not cause unnoticed design rule violations in

Inmos has invested around ten man-years in the desigo system so far, and is sure that it already has a better system than two or three major semiconductor manufacturers. Some 40 people use it, time sharing oo the VAX machines, and developments are under way for microprocessor controlled terminals to relieve some of the speed

technology of the '20s A COUPLE of years ago the term "Langmuir-Blodgett film" would not have raised a frisson of excite- within a few years. within a few years.

Langmuir-Blodgett (LB) films are layers of organic materials one molecule thick deposited on solid ment outside the research community. Now, with promises of tech-

niques producing faster, deoser integrated circuits, even the new surfaces. Single molecule thickness is achieved by floating technology world of microelectronics is starting to pay attention to this 60-year-old technology for the material on water, as in the simple school physics experiment calculate the size of a molecule. The film is transferred to the solid International research efforts by dipping the solid in the water and withdrawing it through the involve universities in the UK,

US, Japan, France and Germany, as well as electronics companies like IBM, Xerox and General perfect layer with no boles can be Electric in North America, GEC formed and deposited on a solid substrate. These layers can be built up successively, allowing films of precisely defined depth to be built up. It is this "molecular Lego" idea that makes the films of France's EFCIS. These research activities, cover-

ing a wide range of biological as well as electronic and optical appli-cation areas, are mostly still 10 to such interest. 20 years from any commercial pos-But according to Gareth Roberts, who chairs a Science and

likely successful applications are as resists for electron beam lithography and in sealing off leaky layers of material deposited by conven-Engineering Research Council (SERC) working party on the

near Paris, claims practical gains in has already obtained resolutions of

Other possibilities are depositing insulating layers on semiconductor materials which, unlike silicon, do not have a good insulating oxide. Semiconductors such as gallium arsenide and in-dium phosphide come into this category. The promise with LB films is, says Roberts, new ways to capitalise on these materials, not to

compete with silicon.

Layered films with particular optical or magnetic properties offer the possibility of high density memory devices. "You can put assembled monolayers one on top of another for as long as your pati-ence lasts," says Roberts.

For microelectronics, the first Optical waveguides with tailored thickness and refractive index, diaplay panels, pressure sensors, and biosensors monitoring organic materials are all being Investigated.

## NON-STOP HONEYWEL

## PRINTERS

outstanding print quality that is

world of printers and is out to prove it. Today marks the birth The senal interlace R32, is

ised by intelligent engineering, total reliability, salety and com-

#### NON-STOP INNOVATION To supplement those small printers already opera-

Honeywell Information Sys-

tems Italia is a reality in the

of a second generation of

designed and produced in

Europe to meet European demands. Printers character-

matrix printers created,

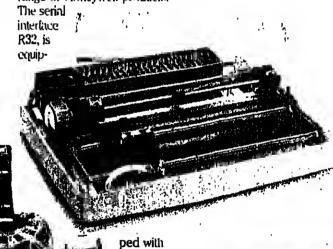
lional, such as the Lll and SII 80-column series and the larger L31 and S31 132-column series capable of linking with all parallel or serial interface systems which have been recently updated, Honeywell Information Systems Italia proudly announces the birth of the L32, R32 and L38. These new printers go to enrich an already glittering range of products. They are designed for a professional public, those very people who demand always higher standards of product quality, work continuity, operational simplicity and enhanced

#### NON-STOP PERFORMANCE

The new L32 and R32 printers provided with a 9 needle matrix head, operala at 150 characters per second on 132 columns. The L32 parallel inter-

speed.

characteristic of the whole range of Honeywell products.



matically inter-

pret programmer's commands plicated graphics. The L38, on the other hand, employs the latest 14 needle matrix head technology and is capable of printing 400 characters per second. Such performance does not imply that the equipment is functioning at its operational limits: In fact, Its ability to print over a billion characters without adjustments proves the level of technological advance reached. Honeywell printers: a complete range of customer designed printers, capable of silent, safe

Honeywell

Products Honeywell Information Systems Italin United Klogdom Office - Maxted Road Hemel Hempstead - Herts HP2 7 DZ and reliable performance.

## East Germans set to invade **UK** market

PAST Germany's monopoly computer manufacturer Robotron is preparing to launch a 5¼-inch Winchester disc based microcomputer in the UK. Called Micro Mind, it will be based on the A-5120 64-Kbyte eight-bit, office computer which had its East Ruropean launch at Leipzig Fair last week.

version which runs under Robo- at up to 3 Mbytes-per-second via a tron's own operating system Sioa, the UK version will run under One of the first

CP/M.

Leipzig Fair, held twice a year in Hast Germany, is the major showcase for Bast European manufacturing industry from heavy agricultural machinery and railway rolling stock to microcircults. It is also the main entrance to the East German market for Western goods

- possibly the only one.
Claiming to be the oldest trade
fair in the world, with a history
that goes back 800 years, it occupies a permanent aite with several en halls of various sizes, and during its run it turns the normal life of the town upside down, with everyone becoming temporary taxi

This year it gathered 9,000 exhibitors from 60 countries.

The Winchester disc, which will be bought in, will also be available only on the UK version. The East European version has three 128-Kbyte 514-inch floppy discs, made by Robotron, built in beside the distinctive leaf-green screen.

It will have a library of utilities including a program generator, a list generator, an input generator and disc initialisation and sort rou-

PROBABLY the most famous East German company, the optical manufacturer Carl Zeiss Jona, claims to have a chip production system to beat the best in the local control of the electron beam variable from 0.1 by 0.1 to would probably be priced around that have the same resolution in 1978, but was 10 times to thought that the world market price for this type of machine was about \$2 million and the ZBA-20 would probably be priced around that have the same resolution in 1978, but was 10 times a year. Application software will in-clude order handling and invoic-ing, and users will be offered adaptations of various East German

BABEL BOXES FROM PINK Pink PROTOCOL CONVERTOR

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last week.

The machine will run Cobol and Pascal and will have Basic available in July. But unlike the German speed. The channel transfers data One of the first orders for the

U830 bit-slice chip from the East German semiconductor manufac-turer Mikroelektronik, and the eight-blt machines use Mikroelektronik's equivalent to the Zilog

To prove that it watches what goes on in other parts of the world, Robotron demonstrated voice recognition and speech synthesis systems in prototype form. The intention is to go into production if

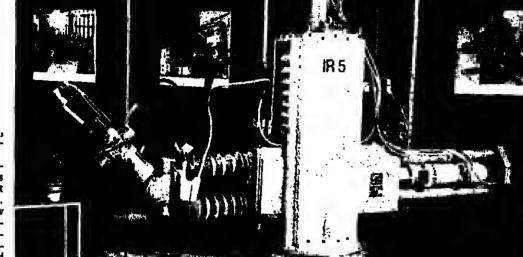
Robotron exports over 70% of its production, 90% of it to other Socialist countries - predomi-nantly to Russia. It participates in the Socialist bloc Eser 2 unified

aystem has come from the Soviet Atomic Energy Institute. The Robotron range uses three

Development chief Dr Knut Kaschlik says that the ZBA-20

at Leipzig Fair, can print inte-grated circuit designs with track widths of 0. lum at the rate of eight

to ten wafers an bour.



The East German Household Equipment Industry Combine produces this robot in small quantities for its own use.

## '4,000 robots this year' target

THIS year sees the start of a major campaign in East Germany to raise productivity through the introduc-

The target is to install 4,000 robots in various manufacturing industries by the end of this year, with the number reaching 45,000 by 1985. There is also talk of revising this to about 200,000 during the evolution of the Five-Year

for its own use, but will not sell them and so did not show them.
Another organization which makes robots for its own use is the engineering department of the Household Equipment industry

would probably be priced around that, but the company bad no plans to sell outside the Socialist

bloc. The demand was sufficient

Russian minicomputer, the Electronica 100/25, which is aimilar to Digital Equipment

Corp's PDP-11/34

The ZBA-20 is controlled by a

nearby Wittstock. They will be installed with controllers from the tron has made about 1,000 robots 20-year-old industrial controller

times to cover the surface of the

## feel that developments in robotics sold several hundred of them in elsewhere in the world should no the first three days of the Fair, but

affeld as the Middle East and North Africa, its traditional solution has been to encourage s high birth rate.

During the last two years, however, public opinion has come

During the last two years, however, public opinion has come

During the last two years, however, public opinion has come

During the last two years, however, public opinion has come

During the last two years, however, public opinion has come

Household Equipment Industry the cation developed for a customer which used a robot application which used a robot from Asea in Sweden, so there is obviously scope for outside suppliers, at least until domeatic production takes off. Chip production system 'a world beater'

Eastern companies, like their that the market is too complex to be able to make everything themeter. Usually with photographic systems problems arise with comselves. Robotron's sales director Dr Frank Seiffert, put it is perspective by saying that the whole of East Germany's populaplex circuits on large wafers be-cause of the difficulty of aligning successive masks accurately and keeping the mask a constant distance from the wafer over the tion was only the same number is whole design area at once. In Zeiss' latest device, a block of

companies marshalled behind gan, but there wasn't a compute to be seen. Elsewhere in the fair, wafer. The time spent exposing the same wafer 12 times is more than made up by the savings in the later stages of chip manufacture.

## Five years to make an

a run of them, is not necessari

wants to take in the three-years

Area manager Geoff Lincol said that even some of the copier were subject to the Cocom em-

The other main problem, of not being allowed to compete with



SEIFFERT . . . "East Garage

#### inger be ignored. There was not much evidence of to selling consultancy. The bulk of the national production of robots at the bulk of the national production. a major promotion of robots at Leipzig Fair, but the handful that were on show all attracted good The bulk of the national produc-tion is to come from machine tool plants in Planen, Berlin, and

sectors of industry and, as well as importing workers from as far afield as the Middle East and North Africa, its traditional solu-tion has been to encourage a high

12 by 12µm in rectangles of any

This performance made it un-

necessary for the company to develop X-ray lithography equipment before 1985, added

The machine on show is the

could match that speed, he said, but not with track widths below hum. The machine's predecessor, Germany and Soviet Union for be-

## impression

WESTERN companies which made the trip to Leipzig agree that it takes two to five years to make any kind of impression in Esstern Europe. A auccessful year, or eva followed by another one.
The only major UK company represented was Rank Xern.

which concentrated on copier made in the US. The compan Xerox 860 word processor, also US-made, if a test marketing scheme in Romania works out wel this year.



different, whether it was perform ance or apecialised applications.

large photograph of Ronald Res Honeywell Italia was trying to fol-low up last year's sale of 12 Level 6 minis with 162 terminals.

#### SUN

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## Amdahl outlook 'super' say brokers - in spite of drop in earnings

having a superior machine." Like most observers he consid-

competitor to the 3081K, to have

of the "overhead" involved in

Compling the two processors.

Nor does he rate the 3081's IMS

performance claimed by IBM.

will show reported earnings for Amdahl below those in the comparable quarters of last year, according to industry analyst Peter Labbe, who works for New York brokers Smith Barney Harria

But this is not unexpected, according to Labbe and, brimful of confidence, he says he "does not foresee any disasters". His views will be welcome news

Production of the 3081 is itself on a slow up ramp, he observes. "Currendy," Labbe continues, to users of Amdahl kit in the UK. and investors in the .company. "IBM has a considerable delivery which is fully quoted on the Lon-don Stock Exchange. advantage over Amdahl in the new generation, a position we believe Amdahl conceded in the interest of With o degree of hindsight

claimed as remembered foresight

- which perhaps many wish

Lable had shared more widely, he says it has been apparent for quite a long time that the older 470 series would have to carry the company for the first nine months of 1982, despite reduced price levels and a probable increased customer propeosity to lease at the high end of the line.

Initially the company scheduled deliveries of its next big machine the 580, for spring 1982, which still left it more than six months behind the first 1BM 3081 de-

liveries.

The 580 is intended as a plug-compatible rival to the IBM machine, and was formally an-nounced within days of 1BM's unveiling of the 3081

With the 580 now scheduled for the back end of this year, IBM has a clear one-year delivery window left open for it by Amdahl, Labbe reckons that IBM is no

run without coupling overheads - from which Labbe admits the Amlonger its greatest competitor against the 470, which will have to sustain Amdahl for longer than on-ticipated. He says that secondhand limitations" in the operating soft-CW SHARES TABLE

Table thoug the claring prices of The London Stock Exchange on Friday and in America on Thursday. The there index is based on the prices of the UK companies in the table. Highs and Louis have been adjusted solven assessed.

Index movement

5 12 19 29 2 9 16 23 307 14 21 294 11 18 25 1 8 15 22 1 1 8 15 22 29 5 12 10 26 3 10 17 24

hates been adjusted where necessary.

\*\*Shares waded on the United Securities Market or under Rule 163(2)(a).

Labbe does not think the de-grading in the Andahl 58/80 will matter, "because it has twice the "Based on the amount of used equipment on the market, new production (of the 3033) will force IBM to move into the limited new build category aoon". Available evidence, he saya, suggesta that Amdahl is competing very well, relative both to new and used

Lubbe forecasts that "not ever Amdahl can mess up 1983. The order backlog is relatively firm for 580s and growing. Customer decisions ro go with an independent tend to he more of a commitment than IBM orders.

"A healthy portion of new orders are from Amdahl's existing customer base. While we would not like to bet large sums on anyhody's order book for the second half of 1983, we believe the ers the 58/60, which is the direct outlook is super.

twice the performance of the IBM "Therefore we see (1) a high hor count and (2), a high purchese ratio. We see cash building up, tax mies declining, profits in counti-nications (Amdahl lost \$4 million machine, which he also thinks has only 1.5 to 1.7 times the performance of the 3033, and not twice the on comms in 1981), and some He attributes this to the fact thut the IBM machine is diadic - ie, revenues from new activities rather than just costs as in 1982." has a twin processor - and suffers from ldss of performance because

Lubbe's estimate of gross profits for 1982 is about \$31 million. His estimate for 1983 works out at \$112 million. O Kevin Cahill comments:

and CICS software too high when it comes to efficiency. He criticises the frequency with which the softwhose performance he has mustly ware employs routines which effectively reduce the dual procesgot right in the past, overlooks a number of selient points, some in Amdahl's farour, some not, for a start, Amdahl is winning Amdahl's 58/60, conceived as a

uniprocessor and architectured to new business outside its existing user base, an operation IBM no Knaggs and Associates, and MKA longer seems able to pull off at the dahl 58/80 dual processor may suf-IBAL is faced with a user base of

large corporations and companies suffering french warfare type attrition in the current recession.

by Borls Sedacea
DATABASE constitutioney CACI Amilald is a counter cyclical has blamed rapid growth for its high stall turnover, after turning supplier, benefiting most when corporate financial axes come out, ilemanding lower overheads and higher productivity.

But there is only so much defec-tion available from the IBM user base, and only so much new business available to the plug-compatibles. Both are now being offered very stiractive machines, sold by big US and UK marketing npera-tions like ICL and NAS. These are tions like ICL and NAS. These are the l.B.M-compatible machines from Hitachi and Fujitsu.

The company's turnover has averaged 50% annual compound growth in the 19 years of its exist-

fiscal 1982 increased 68% from \$14.4 million to \$24 million over the last year and profits increased by 96% from \$850,000 to \$1.67

Midlands acquisition puts Duport

on road to £3 million turnover

the MKA Companies, with assets

David Kelson, managing direc-

tor of DCSL and chairman of the

ICL Computer Users' Association,

is confident that the acquisition

will cusure that the £3 million

tornover forecast for this year will

be achieved, and that by the end of

1984, it will rise to £5 million.
"MKA will not be absorbed into

DCSL," said Kelson, "flach com-

pany will continue to trade male

its own name. It must be stressed

in the short term that it is not the

imention to interfere with the cur-

rent success of the companies by

year of over £400,000.

in doubled profits and turnover up 68% for the year to date. The company claims that despite the wholesale departure of senior management, it has 117 to 163 over the last year, and opened new offices in Brussels, Munich and Fleet in Hampshire.

MAJOR contract and a

Midlands hurenu Doport Compu-

ter Services, DC\$L, to predict ra-

pid expansion in its business this

year, £900,000 contract to supply

all the computing requirements of Serek Heat Transfer of Birming-

leam, and has also intived into

microcomputer sales, training and

recruitment services by the acqui-

sition of the Wnreester-based

DCSL's parent, the Duport Group, has acquired the tyliole of

"We fell foul of our own expanslon rate," said Colin Anderson, divisional manager at CACI's Birnungham office. "Finding 50 ijuality people is difficult, especially 50 who will fit in with the ennsulting

A company like this can only be run on loyalty and when one person goes, the bond of loyalty

CACI 'fell foul of growth rate' that has inevitably developed wit others causes them to go with him When you are expanding at the rate of 50% a year you get sta administration problems as well

responsibility."
The deal with Serck involves the

transfer of its ICL 2950 mainframe

to DCSL's data centre at Tipton

near Birmingham, where it will join the existing ICL 1904S and 2960 machines, According to Kel-

son, only one working day will b

lost during the transfer, and seven

George Cochrane, financia

director of Serck, with severn

house computing, said: "The contract negotiated with DCSI has immediately reduced our com-

puter department expenditure ly

years' responsibility for its

of Serck's DP staff will move to

Tipton with the hardware.

levels ilemanded.

much of CACI's business consiste of a number of projects for which ployed, forming teams which we eventually disbanded.

CACI has fired more thun people und seen more than 20 others reaign at its UK-based European operations over the las

may be historically weak in term

industry, has over 3,000 lobs in Devon, including the biggest inde-pendent building and plant hire company in the West of England

Beginning with a ruined estate

## BTG sets up enterprise fund in West..

IN the first of a planned series of initiatives the British Technology Group has set up an enterprise fund of £2 million in Devon.

The move, accompanied by a similar experiment in Merseyside, is in partnership with the merchant bank subsidiary of Dartington Hall, a long established financing house for local enterprise in the house for local enterprise in the West country.

The ultimate objective is m
channel this money into new enter-

prises, particularly electronic and computer based, via organisations with a track record of business

In Devon, which is on a par with Liverpool as an employment black spot, the BTG has chosen one of

nology atart-ups.

The new organisation in Devon will be called the Weatern Enterprise Fund and will operate from Darrington Hall, near Totnes. The board of the new organisa-tion, comprising BTG directors,

Dartington directors and local directors, has no representatives software, or from the electronics industry on the board. In fact the board appears heavily weighed with bankers and the initial fund-

with bankers and the initial funding, £450,000 from the NEB and £50,000 from Dartington, is just enough to create 20 jobs.

The fund plans to make average investments of about £100,000, in return for which it will seek between 20% and 40% of a small company's equity. The money for company's equity. The money for companies will be provided in the the most prestigious local organisa-tions as a partner, but one which has no experience of high tech-

form of loans and equity.

The banking bias here is clear, and the fund appears unmindful of the message, so distinctly spelt out by some of the apeakers at the Computer Weekly financing conferences last year. Small companies need equity, not loans, primarily because the burden of interest and capital re-

payments often stops dead in their tracks even promising small com-

While acknowledging that the fund is small, a spokesman at Dartington said that it was an impor-

left when they bought it in 1929,
Dorotby and Leonard Rimhirst
built up a thriving enterprise
which employs 1,060 people. But
the great wealth of the Blumhirsta had much to do with it, a fact th NEB should note.

However, as one recent bookles described the trust! "Dartington is on the side of the angels. The pur-pose of Dartington is to question everything and to offer new solu-

#### ...and signals its faith in a new product in North-east

IN a further example of the BTG's mentation market, new approach, it has allied itself The primary aim of the finan-with the Midland Bank and Tyne clers is to create the marketing or and Wear County Council to invest ganisation for a product which is in a small company.

in a small company.

In a small company, to be called pletton.

The company, to be called pletton.

Mikro Industrial Instruments, will the final details of how much builld and sell microprocessor signoney will go into the project have nal conditioning equipment for the not been worked out, but half of process control industrial instructing BTG a stake will be guaranteed. orked out, but half of castle upon Tyne; ake will be guaranteed. Despite this, the various parties

by Tyne and West County Council and 80% of the Midland Bank subscription will be guaranteed by the taxpayer via the government loan guarantee scheme. The product is still in development at the Microelectronics Applications Research Institute (MARI) in Newcastle tipon-Tyne.

involved have sufficient faith in the work to invest in the creation of a sales organisation which will pre-sell the product as it nears

completion:

In this respect at least they are following a respectable computer industry tradition of announcing and selling products, such as 3081; well in advance

#### GILB'S MYTHODOLOGY

## You need time – so let users learn the hard way

reliable, it can meet any other objective."

IN the previous columns 1 have commented on my nine laws of reliability. Perhaps you thought that I was finished? Not so. Co-author Gorald M. Weinberg, in our book Humanised Input (Studentlitteratur, Lund, Sweden) felt challenged to state an even more fundamental law of systems. Con-sequently, he called it the Zero'th Law of Unreliability. He re-stated the Law twice:

"The less reliable a system has to be, the more easily it can meet any other objective"

and, in its most general form: 'if you don't have to meet the specifications, you can build s

This law could be the salvation of all hord-pressed programmers and system developers. Your user is screaming for the system "yesterday", or perhaps equally un-reasonably "on schedule". Don't stand there muttering excuses like "95% completed". Give the user the system. Anything will do. Some old program from your student days, for example.

Naturally, as in all new systems, be some "teething

reliability ever, much less on the first day. So the very first transaction which hits the logicware results in a wrong output. No prob-lem, that's normal in the running-in phase. Patch the logic to handle that transaction, and if you are lucky then that same logic will

system up from its original zero company data processing function per cent reliability to something got rather upset with me.

magnificent like 90% or more, He indicated that if 1 was

maybe even on the first day have not made any clear, measurable agreement as to the level of reliability expected upon delivery. Very likely, therefore, they have not even specified a decent reliabil-

hard way wby you need time to do

things properly!
There are many interesting variations on this theme which will get you, the developer, out of any difficult situation you muddle yourself into. Now you nred not worry about any other unspecified attribute of the system. They can all be "patched" into the program as you go, after "delivery".



We all wish we could accurately state costs, delivery schedules and work-power requirements in advance, later to have them come true in practice. Barry Boehm, in his Software Engineering Economics, makes the disturbing note that even when you do everything according to the best known methods, only 70% of your calcu-lations will be better than 20% wrong. (The rest will be worse, in

#### Reliability I made some such loose remark 10 YEARS AGO I From Computer Weekly of March 23, 1972 . . . THE Civil Service Department the 370 which will allow virtual

has initiated studies of network problems with CAP, Logica and Selcon . . . The NCR Cectury 300 le launched in the UK, 18 months after the US launch . . . . American Staodards lostitute

months after the US launch ... American Statodards Institute
Data prep equipment manufacturer Kode is test marketing been ordered for Yugoslavia, one minicomputers ... Gemini of Montreal is offering a package which understands eimple English and French senteoces . . . general-purpose computers last IBM is developing software for year cost it \$250 million.

The Zero'th Law of Reliability:

"If a system doean't have to be reliable, it can meet any other

"If a continue patching the system body being able to calculate software costs accurately in this business. The director of a large

serious, then he would soon fly out The users have no right to com-plain about this treatment. If my wide experience is any guide, they

I got his face to change colour by a Zero'th Law question. "I believe that you can slam on the project brakes with 5% accuracy. But in ity acceptance test, a complete test set or anything else.

It is about time they learned the and tolerable reliability, do you deliver pre-specified measurable qualities such as portability, maintainability, user-friendliness, security and the like?"

No, be did not. And he was so smart that he admitted that he was no better than others at calculating cost. He was only good at manipulating the Zero'th Law to his ad-

What the users can't see (yet) won't hurt them (yet).

Even one single system attribute such as reliability, when you push it up towards user ideals of perfection, has the effect of pusbing the development costs up towards in-finity. When many attributes at the same time are consciously



Tom Gilb is on independent consultant, lecturer and outhor on comput-

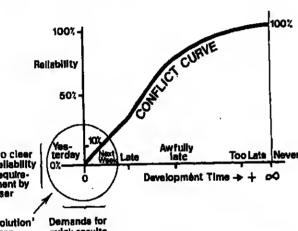
forgiven if the final cost is rather difficult to estimate accurately.

The only interesting solution I

know to this dilemma today, is to plan for evolutionary and very early delivery of small subsystems. These could be at the level of 1% to 5% of the entire

cost of development against the quality levels measurably delivered, you will begin to get a realistic idea of what the total system will cost. Time enough to reduce your over-amhidous requirements, or to get the required budget to continue (I refer you to Mills and Dyer of IBM Systems Journal 4/80 for the theoty and practice of this art.)

on - by the micro chip. In parti-cular, he seemed fascinated by the advent of voice technology, the micro in this case presumably be-Wilmot appeared hopeful that before long, doors would open at the sound of his voice or that his



The Zero'th Law: "The lest reliable a system has to be, the more easily it can meet any other objective.

teletext awareness campaign

is going to be difficult. Promotion

of viewdata, Prestel, Ceefax and

Oracle will be covered by the Press, trade and broadcasting media, with the local high street

TV rental centres and stores adding their collective marketing

veight.
Commitment was similarly evi-

dent in a recent interview with Robb Wilmot in the Sunday

Times. The ICL leader admitted

to being committed - and turned-

computer terminal screen would draw a transistor chip on his verbal

That ICL is keen to open new

technology doors is understanda-

ble, if rather belated. Voice

especially in such areas a ware-

volce pattern commands into

domestic TV equipment. Sets

apparently will accept up to 30

would seem to be more than ade-

quate to cover basic home operat-

Rather disconcertingly, the

system is interactive, with a sultry

ouse dispatch control.

## Don't be committed to voice too soon

COMMITMENT, it seems, has suddenly become the latest theme female electronic voice answering "OK," or, when confused, "Please Try Again". n the data processing world. For the supplier, only aggressive

Interactive computing, as yet, is commitment will move the com-pany a notch or so up in the sales decidedly limited, as Wilmel would quickly discover if he ven-tured into a local installation. Here be would find the operations team league, while the user is expected to be determinedly committed to absorbing ever-increasing levels of vocally abusing the system, closely followed by the system engineer when addressing the troublesome technology and innovation, with only the company accountant hav-ing reservations about the commitdisc controller. nent of further corporate funds.

Until such time as Hal operating systems become standard issue, Commitment was the name of the technology game at the recent the installation will have to confine industry conference on teletext.
The 500 or so invited delegates
present readily committed themverbal comments to end users and senior company management plus a word or so directed towards the selves and, let us hope, the user, to equipment sales manager. Other conversation outlets could include substantial proportions.

For the public, avoiding this particular branch of commitment the atationery supplier, installation plant or newts.

At present voice recognition aystems are somewhat inflerible. Having recorded your voice, the aystem will only identify closely aligned speech patterns. Any deterioration or deviation in the voice, covering perhaps urgency, concern or emotion will result in non-con-

Given the normal computing working eovironment, such a re-quirement would be hard to main-tain. Similarly, problems asso-cisted with installation flexible rostering would present speed recognition difficulties.

It may be, of course, that ICL already engaged in speech revealed in the American current best-seller The Soul of a New Machine, given determined com mitment by a dedicated team research engineers, together with a tight timescale, almost anything is

possible in technology.

The book details how a group Digital Equipment engineers left to form their own company and st recognition systems have been around the industry for some time, about producing competitive poducts. The soul alluded to in the However, developments are al-ready being initiated in Japan by Toshiba, which is incorporating

title is that of a 32 bit mini. The book is noted for some rather heavy non-computer in-guage, which surely even a very down-to-earth configuration would fail to recognise. However, the book is assured of a good UK commands, a number which response, if only from the already committed body of DP profes

Alan Simpson

Ousdrant House, The Quadrant, Sutton, Surrey SM2 5AS Thursday, March 25, 1982

## The public has a right to know

THE policy came is privatisation. The practical reality of the government's decision to sell off publicly-owned companies is that the price the public gets may he taking second place to the urge to sell. Worse atill, spurious claims for commercial confidentiality leave a suspicion that price tags are being attached to some companies which risk seriously under-valuing them.

Take first the issue of commercial confidentiality. The National Enterprise Board's announcement that it will he disposing of part of its stake in Inmos, the semiconductor manufacturer, is hardly news, though the expected price of £50 million is. But there are a number of Americans to whom the poteotial sale will be even less of a surprise than it

A group of financial institutions in California and the American mid-West were approached, around the time of the Wescoo semicooductor show in San Francisco last September, by aenior members of Inmos. Although the details are still obscure, the Inmos men were apparently looking for money for an anticipated buy-out. This is fine, except that Inmos is a publicly-owned company, and matters as vital as its funding should be the material of public concern rather than private deals.

Which brings us to the case of Data Recording Instruments. DRI is the print and magnetic media aubsidiary of the NEB. In its last financial year (1980-81) it lost £9.5 millioo. It looks like losing £10 million in the year just eoding, which must make it an ideal candidate for sell-off if a buyer can be found.

This should not, however, he allowed to happen without more detailed rendering of its accounts than can be found in the one line summary which appeared in the NEB's own

The NEB - it has not yet legally become the British Technology Group — claimed that the £9.5 million arose from the atart-up of a company called United Peripherals, based at ICL's old Winsford factory. The atart-up is being managed by Cootrol Data Corp, which has a 24% atake in theoew venture. DRI holds the remainder.

The problems of the valuation of DRI arise hecause of the very different sttitudes to the scale of the United Peripherals project currently heing displayed. Control Data is surprised to hear that it is managing an operation which is set to awallow £20 million in its first two years. As well it might. Short of plating the walls of Winaford with gold, it is hard to see how £20 million could be spent there in that

Which raises the question of disclosure once again. The deal over United Peripherals was a secret one, with neither the price paid for Winsford nor the terms of the start-up being disclosed. Yet the public has put up most of the money through DRI, and has a right to know how much it can expect when the DRI sale goes through.

Based on the lack of disclosure so far, it is well within permissible bounds to inquire if losses, particularly those of the order of £19.5 million, arise from the causes quoted.

It is also pertinent to inquire whether those losses are out being so allocated as to make NEB companies look a lot less attractive to potential buyers than they otherwise might. The beneficiaries, in that case, would be the private sector organisations which eventually end up with owner

When State-owned enterprises go into partnership with private finance for the greater public good, it is essential that the public knows the value of the "good" as it relates to the disposal of its assets.

The NEB has oothing to fear from such disclosure. Over the years it has been a passably good steward of the funds it used, even though its failure to spend all the sums allocated to it might make it a less than satisfactory servant of public policy in some eyes.

It must not, however, hide behind claims for commercial confidentiality, ss it is oow doing. Without all the facts, the public cannot know whether its interests in any disposal of its property to private enterprise are being properly served.

## 1984 and all that . . . /

THIS week's example of the strange things people say about computers was seet in by J. A. McCurdie, who wins £5.

People, speaking convectional earth languages, to use to run their businesses better.

Advertisement for Loguet

#### LETTERS

## DPMs beware micros!

DAVID Ferris in his article Micros in the DP World (Software Month, CW, February 25) claims that the DP man has nothing to fear from micros because they will ning to put two and two together: world in an evolutionary fashion, as standalone dedicated Visicale or Wordstar engines, or dumb termi-

Six months ago I was a life-time mainframer and would bave agreed with him. However, since then I have been talking to two sets of people who have shown me that a DP manager with David Ferris'a ideas will be a gone chicken within two years.

The first set are micro dealers,

wbo have rubbed it into me that the only thing amall about micros is the name: it is about to classify 96K Pet with hard discs as a

On the application software side, the dynamics of the micro business, where every dealer is going for a vertical market which needs purpose-built software, dic-tate that the micro industry is cburning out software at twice the rate of the mainframers. So the DP manager may not even have to

The other people I have been talking to are top managers in the City of London. They tend to be distillusioned by the poor service given them by their monolithic computer departments, and are constantly being told by their operating managers of the wonder-

ning to put two and two together: 32K on the deak is worth 256K in an ivory-tower computer room.

It would be more self-protective based on our joint development of Cyclops with the Open University, has been successfully aold and defor DP managers to embrace the micro, like the group DP director of a French multinational cosmetic livered with a number of our IVS-3 firm who five years ago told me videotex systems, and the ADPthat the future lay with distributed Aregon service offers a wide range of videotex graphica capability processing. His strategy was to throw out the IBM 145s and 135s then installed in his firm all over the world, and bresk up the office staffs into "cells" of two or three

people each with VDUs and a printer and a microprocessor, linked to larger databases if neces-Full of excitement, on my return to London, I wrote a report

on this heretical concept to my company's market planning division. They did not even acknow-ledge my letter. But that was five years ago, and there are people in 1982, like David Ferris, still with their heads buried in the sand. So, to survive, I recommend DP managers to make like my French friend, get off their butts, and build their future round networks

of usera, local or remote. If they sit computer rooms imagining it is still 1975, they will not last long.

#### AL/X sold under licence

I must correct one error. Mr funter asserta that AL/X, the expert system language developed by my company, Intelligent Termi-nals, is priced at £10,000. This is

I READ with interest Philip Hunter's article Artificial Intelligence reaches Novice Users (CW, February 11).

not the case, AL/X is sold under annual licence, and costs £3,000 per annum with 50% discount for prompt payment.

rompt payment.
The tabulation below is intended to untangle a mix-up which Mr Huoter has seemingly made between AL/X and SPL Interna-

£10,000 (mainframe users) £2,000

Donald Michie

Сотрацу. Expert System Language

AL/X Commercially avail-(no arithmetic able since 1980 for AL/X 11 series, Cyber 175, Superbrain and Apple

Sage (AL/X look-

Intelligent Terminals Limited, Oxford

## Who really writes '1984'?

ON reading 1984 and All That ticular machine. Maybe all your (CW, March 3) it atruck me that 1984s are an indictment of people

those who write these gems in newspapers must get their information from someone.

It can only be those who show them round an installation or par-

Liveware File

PICKET LINE ..

ON THE GRUNWICK

. NOR IF HE WENT TO EIRE FOR HIS HOLINAYS ... 空头



NOR IF HE IS BITHER ILL OR ON THE DOLE -



- DOES HE DWN THE CAP



### Aregon does offer graphics

YOUR report of the ADP/Aregon link on viewdats (CW, February 23) was of course, entirely accurate, but Mr Poulter (Letters, March 18) is somewhat awry in Anthony Chandor's remsrks confirmed the fact that, while a suggesting that Aregon has no in-terest in high resolution graphics. Our Audio Graphics Processor,

for only a small percentage of their work. Text remains a quite impor-

number of people do need a full videotex graphics capability, it is

#### Vehicle scheduling suite

1 REFER to the article by Maggie McLening (CW, March 11) reputer programs which is being developed by Wootton Jeffreys &

I would like to point out to your readership that although Mersey-side Passenger Transport Executive is currently experimenting with the operational parts of Bus-man, particularly vehicle scheduling, there is as yet no commitment

purposes to provide information for passengera.

The Executive is currently con-

sidering auch a development, in consultation with Merseyside County Council's Joint Computer Unit, but no decision has yet been

M. P. WHITE Marketing manager Merseyside Passenger Transport

#### Joint marketing with IBM

pondent's positive remarks (CW, Marcb 11) regarding Floating RICHARD SARSON Point Systems' revenues and

I would, however, like to correct the statement made regarding OEM deals with 1BM and Digital Equipment. FPS has a joint mar-keting orrangement with 1BM under which the two organisations may co-operate to offer a combination

of their equipment 10 meet clients'

needs. Each organisation contin-ues to sell and be responsible for its own products. A similar armagement is under discussion with Digital Equipment Corp.
You will understand therefore that there is no OBM contract between Floating Point Systems and either

JOHN HARTE Director European marketing Floating Point Systems UK Ltd Bracknell, Berks.

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessorily for publication.

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To: Chris Hipwell, Room 309H, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS I wish to receive Systems International free of charge. Please send me a reader application oard

the back garden EXPERT systems, which consist of a knowledge base and an inference program to draw conclu-

Polar predictions from

ZX81. Generalised systems are lone floe.

**DOWNTIME** I

also nvailable. \_ weathermen. It was designed by an enthusiastic, obviously gifted amateur, and the so-called knowledge database is constantly updated from readings taken in his garden. The expertise la, of course, his own.

#### Who needs such friends?

sions from it, have been spreading month of the year there. So much for his expert system, I thought.

lsonvailable.

I am still puzzled, though, how
But now, I learn of one for the expert system oan forecast

PERMIT me a moment to grovel veloped into a buzz phrase genera-PERMIT me a moment to grovel at your feet, oh vertiginous reader.

A few weeks ago I reported on a buzz word generator reputed to bavo be on published by the Canadian Defence Department. had cause to question. He assured nology, but from an incandescent friend, whose lengthing new that this was something new the that this was something new was published by Honeywell over I now know otherwise. So fare, well, former friend with the whole lot.

their wings lately.

The first were an attempt 10 shoulder some of the expertise of doctors and geologists as a guide 10 diagnosis and prediction. More recently I heard of a system for homeopaths based on the Sinclair 2X81. Generalized systems are lone floc.

To British expectision. To British expedition to the North Pole has suffered sufficiently high temperatures which have caused the ice to break up and strand the reckless men on a lone floc.

The British expectision. To British expedition to the North Pole has suffered sufficiently high temperatures which have caused the ice to break up and strand the reckless men on a lone floc.

## Statements are computerised and can only be addressed as Mr, Mra

#### No respecter of titles

"WE npologise but we are unable to amend your name to read Dr. Statements are computerised and can only be addressed as Mr, Mra LIMITED are the number of times we will have to brake sharply for a red traffic light if a scheme in pilot at several major car manufactory.

LIMITED are the number of times we will have to brake sharply for a red traffic light if a scheme in pilot at several major car manufactory. pilot at several major car manufacturers gets on the road. Cars would have n little compu-ter under the bonnet which would

Such was the message for a man outraged at the irreverence in which his mail from a credit card company was addressed.
Such is the state of a disrespect-

But why stop there? If the cars could talk back to the traffic lights, obviated for ever would be those



THIS seems to be a week for post-scripts. Here's another following word generator, in which I, criticised the use of nouns as adjec-

Charles Wagstaff, writing from Poole, Dorset, disagrees with me. In fact he quotes an example

Perform two turns on the "filler cap air valve screws," orders the

by screwing it down.

Any reader who has come across from an outboard motor manual in which a string of four nouns forms bling as adjectives please let me

let air in as petrol flows out, and

explains how the valve can be ahut

## Automating the driver

the computer to speed up for a green light, and the system would clog in no time. receive infra-red signals from an Hair splitting emitter seated close to the traffic light. The driver would then be I FEEL that n hair is split in this instructed by the computer whether to slow down or speed up in order to hit the traffic light at extract from The Computer Jour-nal: "For KPK it takes months to

write a good program, and even longer to produce a correct one." KPK is the chess end game beobviated for ever would be those tweeo a King and pawn on one irritating waits to cross empty side versus a King alone.



Conversation piece OVERHEARD by one of my nor correspondents, a conversion by

over two computer opening about their manager ran like his First op: "He a greef, a his his over goes into any depair over

**PROGRAMMERS PAGE** 

### Clare is out to set up a novel record

years, but few authors have yet taken them up. Perbeps they fear that the fragile creative process would hibernate in the artistic Arctic of information technology. Not so the record-breaking

yachtswoman Clare Francia who has bought herself a word proces-"It has quickened up my out-

put immeosaly," she says.

The system was tailored for Francie by Key Computers of Poole, Dorset, on a DEC LSI from the LEX II word processing

oftware. Frencia has already used the system to write a script for a forthcoming BBC 2 documestary on Somerset Maugliam.

Her novel, she says, will consist of about 130,000 words and be a thriller "based on factual



FRANCIS . . . Using DEC word processor to write a thriller.

"Clear the

desks for

System Alpha"

## Spoke in the wheel of the case for simplicity

panel behind which lurks ever more complex machinery.

Translated into computer jar-gon, his argument could be encap-

sulated in the cliche: End user sim-

plicity implies programming

THE path of simplicity leads to the palace of wisdom. Or does it? For so long has simplicity been lauded as an absolute virtue, I suppose it was inevitable that a counter argument would develop.

An engineer writing in New the myth that simple is best. He cited the example of the bicycle, often hallowed as the ultimate in pragmatic simplicity.
So simple in fact that an Irish

philosopher was once driven to write: "God would ride a bicycle." Maybe. But this engineer sees in

of God's universal design. "To be successful, they needed the invention, development and production of ball bearings, aprockets, roller chains, the free-wheel and goar changing mechanisms," he writes. The pneumatic tyre required advances in the processing of rubber. Lightweight frames needed thinalled drawn steel tubing."

**System Alpha** 

here over terminology. Surely sim-plicity as understood in the context The writer further argues that implicity is an illusion protected

rationalisation of an ever more complex world, a maintenance of understanding such that we are out run off our feet by a tide of shstraction and jargon. Simplicity should not be confused with tri-

code which are difficult to read. As such, it has become universally accepted, even though the system as e whole may be complete. (Correction: Especially as the system is complex. Simplicity is a goal, not

But it can also be a danger. With so many people writing small programs at home, or for specific problems at work, there is the erroneous belief that amateur skills so acquired can be easily extrapoaition of skilla in systems analysis,



## Challenge for the real time programmer

used on production lines, complete system testing is usually impos-sible and often has to be simulated on hardware using an array of panels and switches.

It is then impossible to anticipate all the problems that might arise when the physical connec-

tions have been made. Sometimes calculations of the timing of labelling machines and pneumatic handling devices fail to allow for some unforeseen lag in sometimes inconsistent end uns case the program driving the equipment has to interact in a more dynamic way with the sen-

made by the engineers of Cam-bridge Consultants (CCL) which cialises in production control and other real time systems.

John Lumley, a member of CCL's software group, emphasises that a trade-off has to be made on production control projects be-tween getting started on imple-mentation and obtaining a correct specification.

For one machine control project CCL decided it needed to write an operating system aince there was no proprietary one capable of the high apeed necessary to run concurrent production processes from just one cootroller.

This consists of a small executive stack that bandles the swap-ping around of various tasks on the duction line, and a recursive

condition evaluator. It avoids the need for a sophisticated time slic-ing system and, according to Lumley, gives the programmer the security of knowing he is not going to be swapped out at some vital

CCL began writing controllers in Coral, but later switched to C. "It allowed us greater uniformity

and p wer, but is more dangerous, says reter Similar, her of the software group.

One of the dangers, also a strength for CCL, is that no distinction is made between function as made between function as made between functions. tion names and ordinary variable names. This is a potential source of error, but facilitates the construction of interpreters from large tables of function names, which can be passed as arguments in sub-

Lumley explains that this facility enables a particular production process to be restarted according to the state of a tree of boolest conditions and function calls.

PUZZLER A

x x 3 x x x x x x x x x 3 3 X 3 x x x XXXXXXX

x x 3 X

This skeletal multiplication sum contains only five 3s, all of which are given as clues. The problem is in reconstruct the rest of the sum. See page 45 for solution ...

## Staff training—matter of course for the manager

operator's career is the transitio

"It's the point where they stop being one of the lads, and become supervisors," be said. "At this time they decide where their future lies. The technical learning curve flattens our, and the supervi-

ager," replied McCarthy.
"You know of some DPMs with

an operations background then?"!

asked. "There are some," said Young - but he was unable to bring their names to mind.

If there are any out there, please

Asking what the training marke

And from Young: "There are more people coming on courses since the beginning of 1982 – it appears that industry is beginning

They agreed that supervisory training was a bit of a luxury for

some sites, and that more immediate benefit could be gained from the technical courses. Seminars and forums are not in much de-

is confident that this will change.

systems programmers, communications and other straints.

"JCL writers and systems programmers should be part of operations," said McCarthy. "And

operators make the best ones — they have the global view and are not blinkered like a lot of applica-

sitting at deaks," he added. "They like it when it's really busy, and get bored if things slow down."

According to Young, some ops

"Operators are not satisfied with

tions programmers.

3-day seminar for managers

A THREE-DAY seminar on the effective use of computer operations management is to be held at the Royal Lancaster Hotel, London, between May 19 and 21. Toples to be covered include personnel management and development, response of the control of th

from operame to senior op.

sory skills curve takes off," I esked what jobs lay ahead fo an operator at this stage.
"Shift leader, then DP man

get in touch with me.

ing stuck in en empty office with a

During my five years in opera-tions, I was not sent on a single course. In those days (not that long ago) operators just didn't go on pick it up as they went along.
It was not until I moved into

thing vaguely resembling an official training plen appeared, and I went on my first course (George 3

No one expects a trainee programmer just to muck in and learn the rudiments of Cobol as they go along, so why should operations be different? Any company that thinks the enhancement of operator skills is a waste of money is sadly deluding itself.

One organisation which believes n getting the most out of operatora is Protocol Operations, based in "Training is the easiest thing to knock out of your budget if times are hard, because it doesn't show an immediate return. But you can save a lot of money by having your Reading. Formed at the beginning of last year by e group of independent operations consultants, Protocol provides a wide range of structured courses for operations

All the staff at Protocol bave at least ten years' operations exper-

"It's important that the lecturer and the students are on the same wavelength," said geoeral manager Peter Young when I spoke to him last week. "We won't take on anyone as a lecturer who hasn't been in operations."

"We're looking to improve pro-ductivity by tuning-up people," said treioing consultant Alan AlcCarthy, "It's like a car - you won't get the best performance out of it is not in tune, and training is a good way of giving people a tweak."

The courses provided range from an introduction to the fundamentals of computers, through IBM-oriented operations and JCL writing, to communications, man-agement sod contlogency planning. What used to be the shift leader's job is now split between the shift leader himself and

The concentration on IBM education is explained by M. Carthy.

There are a lot of IBM sites around by around, but operations training from the manufacturer is restricted to video courses - and ops deserve better than that. ICL, on the other hand, does a pretty good job

One of the problems in finding lecturers is that of locating people who are not only technically competent but one problems are not only technically competent but one problems and the problems. peteot, but can put their points across clearly.

"The two qualities are not easy to find in one person," seid Young. According to McCarthy, and try to do something about it." the most important stage in an he concluded.

The odd experience of trying

to make a start in operations

even the most junior positiona.

Martin Gadsby is 21, and lives
near Nuneaton. Last December,
he completed a three-mooth TOPS vices, the company which ran Gadaby's course. Of the 15 who seven now bave jobs, one has a job lined-up, three may or may not be employed as KBS has lost contact course in computer operations, gaining practical experience on an ICL 2903.

A spokesman for KBS aaid, "He had a reasonably high aptitude, 71%, his highest mark was 77%, his lowest 35%, and overall he came out about average."

So why hasn't he been able to find a job? that most of the jobs he had ap-

"He must write his application letters in Swahili," replied the I pointed out that Gadsby had sounded reasonable enough to me wben I spoke to him.

Cobol experience.
I saked if he had coosidered TOPS course in programming.
"I can't do another for three
years," he replied. "Unless I can

But it now appears that the indus-

Since then, he has applied for

ience of interviewing than you bave," anawered the KBS get a job, I can't do a course, and 1

It seems strange that you need

ience is by getting a job, but that



# Every busy director deserves a personal assistant. McCarthy siys the operator's role has changed. Where once ops had to do everything ranging from repairing hardware to correcting software errors, there are now two types: tape loaders and technicisms.

"But I've already got one...my secretary," you

True, but does she have the time to give you ail the help you need? Many secretaries are so

bagged down with day to day correspondence, reports, minutes and so on they just don't have the time to be personal assistants as well. We don't think a person in

your position should have to worry about these problems. So we've come up with

the answer. The Bitsy Secretaire.

This is a specially developed word processor which can speed up all routine 'chores' quite '

dramatically, so your secretary will have plenty of time to give you all the help you need.

With a minimum of training she can produce letters, reports, minutes with much less effort.

And like our other systems, we've designed the Bitay Secretaire: with the secretary in mind.

'it's simple to learn, has easy control instructions, even a special screen with brightness control that tilts so your secretary can adjust it to suit herself.

So don't let your work get on top of you. The Bitsy Secretaire

will give your secretary the time to be your personal assistant After all... you deserve

a helping hand.

PLEADE	OFFICE ALL PROPERTY		ومسواح ساء وخدو		
PLEASE	SEND ME PURTHE	RUE IAILS OF	A THE RITS	A RECKE IN	IIRE
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decommunications in one simple to use multi-puter terminal, a word processor, a computer-

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System Alpha offers a vanety of mortels based on a 14 colour videotex terminal with local page store, PSS interface and many other

eyboards and printer.

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System Alpha is versable. It can be a com-

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It can be used in home or office

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The way business is going



## Mercury appoints chief and directors

HAVING been granted a licence to operate a telecommunications system in the UK, Mercuty Com-munications has named Derek Evans of Cable and Wireless as chief executive. The company has also elected a board of directors.

Evans has been with Cable and Wireless since 1972, serving most recently as regional director responsible for Bermuda, the Caribbean, Central and South America and the Atlantic Islands. Before joining the company, he worked for the Post Office and also held Bast, and Hull Corporation - a British independent telephone

Mercury's first phase of de- has a 20% share.

## Committee

THE British Computer Society's Committee for the Disabled has elected Frank Ellis as chairman to replace Julia Schofield, who vacates the post after two-and-a-half

years. Ellis has been treasuret and membership sceretary of the British Computer Association of the Blind for the last six years, and is himself blind. He works at the computer branch of the Central Electricity Generating Board in Stockport, Cheshire, os a third en-

holding an employers' reception at the BCS headquarters in London.

velopment of the Mercury network will be in the City of London, scheduled to be in operation in the first quarter of next year. The rest of the system will be introduced in phases to connect British major

phases to connect British major commercial and industrial centres. Board of directors is John Bird, Peter McCuan (Cable and Wireless), Ronald Watson, Charles Morland (Barclays Merchant Bank), Quentin Morris and Bryan Marson-Smith (BP). Peter Cott of Cable and Wireless has been named technical director and Geoffrey Grocott of BP becomes senior project manager.

Mercury is owned by Cahle and Wireless (40%), BP (40%) and Barclays Merchant Bank, which has a 20% share.

■ Peter Corthine has joined BIS Applied Systems training division as principal consultant. He was previously manager of educational products at ICL, where he developed "non-classroom" training programmes using computer-

Geoffrey Pinves has been appointed sales director of Prime Computer's UK operations. He was formerly Northen operations director at Sperry Univac.

■ Bill Stevensoo, previously account manager for the Irish banks Business Systems' Colebester-based data processing division. He will specialise in financial terminal

THE FIRST GREAT CLASSIC OF THE COMPUTER AGE

NEW MACHINE

TRACY KIDDER 'Brilliantly observed human

Dlane Redfern has been ap-pointed export administration executive at Stampiton Group, She joins from BOC where she expointed vice-president and general ported various gases to all parts of manager at Sperry Univac the world. Also joining the comminicomputer operations. He was formerly VP of marketing for MCO throughout the US, and will be based in Irvine, California.



Joining Microsystems Services as product manager is Darrell Watson, formerly o sales engineer of Testronix. His career has included working on the development of the System X program ot STC, developing software for Hoskyns and Computer Resources, and working as sales support engineer in the European systems division of Texas Instruments.

■ Chris Evenden has been ap-pointed programmer at Bonsai, the newly formed microcomputer and software company. He was previously with ICL.

■ Gillian Spurgeon has joined Rediffusion Computers as a systems controller. She was previously with IBM, as an admi-

#### Consultant

MICRODIGITAL founder Bruce Byerisa has joined B&B Compu-ters as a consultant. Microdigital was among the first microcom was bought by the Ladbroke group in 1980, two years after its formation.

He then became manager Ladbroke's microcomputer divi sion, operating from Laskys stores across the country. B&B is based in Bolton and Everiss will be advising on marketing policy and set ting up a mail order division.



Bill Adams has been oppointed tech-nical sales manager at Position Computers. He previously worked for Oldham-based Lock Microsystems as microsystems marketing manager, and before that was with Ferranti. Positron, which is based in St Helens, has recently started produc-tion on o multi-user, multi-tasking

Bob Carisen has left ICL to join CACI as husiness manager, responsible for training in Europe. With ICL he set up and managed the company's database training rogramme and marketed its data

David Weisen succeeds James Healey as manager of worldwide sales at GenRad Semiconductor, based in California. He joins the company from Baton Corp's test systems division, where he was Western regional sales manager.

■ Norman Wright has joined Mietrotech Management Technolary as sales executive, responsipreviously self-employed, selling micro systems and writing soft-ware packages for the clothing industry and car hire husinesses.

ted manager, production and hil-ling, at MPSL. She joined the company two years ago as produc-tion supervisor.

### Two for the board at Baric

THE Baric board has made two top appointments. Peter Bonfield of ICL has been appointed chair-man, and Owen Rout of Barclays Bank has been named a director and deputy chairman,

Bonfield has been on the board of ICL since October 1981 at director of marketing operations. Before that he was worldwide strategy manager for Texas Instruments based in Dallas, Texas.

Rout is general manager at Bar clays, with special responsibility for branch banking.

Diana Gook has been promoted from technical support consultant to man-ager, technical support, at MPSL. She joined the company last year from CAP, where she started as a He has also served as chairman programmer over eight years ago.
This was followed by promotion to
designer, and later systems analyst.
She holds an honours degree in maof the bank's West Yorkshire foca board, and before that was resi-nal general manager for the East Midlands and the East Anglis re-

### **Telecoms** boss for **Philips**

TMC, the telecommunications arm of Philips Business Systems Group has appointed a managing director to replace Brian Manley. He is Frank Onians, who since 1979 has been director of marketing and planning at Plessey Telecommunications. Manley is group managing director at Philips

group managing director at Philips Business Systems.

Onians joined the Ministry of Supply in 1952 to specialise in air-borne radar developments, and three years later went to Marconi where he worked in airborne navi-

In 1965 he joined Plessey and



on to become manager of the radar equipment division. He was subsequently promoted to director of strategic planning at Plessey Telecommunications, and in 1978 became director of the transmission

#### DIARY

MARCH 31

Annual General Meeting. IDPM Norfolk hranch. Castle Hotel, Norfolk. 7.45.

Communications between users and computer people. Joint meeting of IDPM Kent hranch and Chartered Iostitute of Secretaries. Oak Room, Royal Star Hotel, Maidstone. 7.30.

#### APRIL 13

and Small Talk. USUS (UK) conference. Laneaster University. Details Chris Sadler on 01-980 4811 ext 650.

Social evening - wine and cheese. IDPM West London to Oxford branch. Bull Hotel, Ger-

Applicative programming — an emerging technology. Annual open lecture of University of St Andrews, Scotland. Details from Computional Science Dept, John Honey Building, North Haugh, St Andrews, Fife KY16 9SX.

Meeting of IBM Guide SET group, re-scheduled from January 14. IBM, Wigmore Street, Lon-

PABX, speaker from Mitel. BCS Data Comms Specialist

Ron Adam from British Telecom ning SwitchStream I packet swirched service. BCS Data Comms Specialist Group. BCS Headquarters. 6.00. Details Peter Radford on 01-636 5440 ext 205.

typography and advertising to the imaging techniques used in Ceefax and intelligent laser-based printers. Places on the seminar, which is residential, are limited to 150. Details are available from Sue Dann, Monotype, Salfords, Redhill, Surrey RH1 5JP.

the private sector and from within local government on computing in government. Abstracts of papers, between 500-600 words, should be submitted by April 15 this year. Details from Roy Barnes, director of Lamsac and chairman of the programme committee, at 3 Buckingham Gate, London SW-1E 6JH.

By Roger Prew has been appointed export sales manager at 1 umbiling the programme committee, at 3 Buckingham Gate, London SW-1E 6JH.

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## Joint MD

DEREK BOND, technical direc-tor at Bell and Howell, has been appointed joint managing director of the company's recet acquis-tion, Datalab. He will keep his original responsibilities, and will operate from offices in Mitcham

and Basingstoke.

Before joining Bell and Howill he was technical manager with Wayne Kerr, and his early days in the industry were spent with Ples-

John Irwin has joined Ace ttems to head the company's software product de technical manager at Fileta

Stephen Peerless and Barry Shoebridge have become national account managers at Burolink. Peerless joins the company's London office. He was formerly with the company's London office. He was formerly with the company's London of the long VLI, based in Los Angueros Shoehridge, who is based at Euro-link's Brighton office, will shoehridge who is based at Euro-link's Brighton office, will

Maria Seaman has been appointed marketing communications manager at Prime Computer (UK). She was previously with Systime for three years, where she worked latterly as marketing str.

Bruce Thompson has joined Philips Business Systems Viswass as technical product manager, its was previously based at Philips Video's UK manufacturing center in Country.

# -Britain's only show for professional computer users

Compec is not the only computer exhibition in Britain. But it's the only one which is national, professional and covers the whole spectrum of computer use.

Established in London at the heart of the country's biggest computer using region, Compechas consistently attracted large numbers of users, potential users, manufacturers and suppliers. More, in fact, than any other UK computer show of any description.

> Established 10 years ago, it is now firmly Identified as the key computer market place in Britaln.

A £2 entry charge deters the casual caller, the student and the general public. Yet in November 32,756 visitors were attracted to Compec 81.

All were computer professionals. No other computer exhibition can match the numbers, and no other computer exhibition can match the quality. Watch for Compec 1982. With more exhibition space and the same Central London venue, it will be even blager.

Compec is now also in Manchester (Compec North June 22-24), in Glasgow (Compec Scotland September 7-9), and in Brussels (Compec Europe May 4-6).

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## To: Chris Timmins, Executive Director, IPC Exhibitions, Surrey House, Throwley Way, Sutton, Surrey SM1 4QQ. Telephone: 01-643 8040 Ext 4869. toreach

Telex: 946564 or 944546

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From booksellers everywhere now. £7.50.

ALLEN LANE

#### Hole-in-the-wall cash dispensing is only part of the move towards self-service . . . Anthea Ballam reports

## NatWest pins its hopes on automation to attract new customers

THE war, between the clearing round-the-clock cash dispensing and now stands at around 140,000 banks has always appeared a terminals than any other in the gentlemanly sort of affair, but in world.

By the cnd of next year the bank inith it is a vicious and swingeing struggle that has now struck out as for as the building societies. The but the services that have been borne out of new technology constitute a major weapon,

New technology is clearly seen as an important method of enticing new customers and the British, as one of Europe's most unbanked nations, are perfect targeta for the hole-in-the-wall automatic teller niachine (ATM) marketing

The automatic dispensing of cash is now considered a major selling point for the banks, so much so that last year NatWest widely advertised the attractions of its 24-hour banking facilities.

Unfortunately the timing of this publicity campaign was not the best, the distribution and availability of the Service till at that time sadly failing to meet expectations. An energetic installation progranume has since overcome this problem and in December 1981 the bank celebrated the inaugura. £23. This indicates that users do

public acceptance of automatic caah dispensers is impressive: weekly cash withdrawals from ATMs is now running at well over £10 million, having stood at £4 million in the previous year. Nevertheless, the average value of a transaction is low - roughly

The staff would not be at all pleased if we took the systems away. I believe they

would find it very irksome if they had to return to their previous manual procedures

the bank celebrated the thatighration of its 500th Servicetill, thus
placing it ahead of its nearest rival,
Lloyds in the great ATM technology race.
Today, according to NatWest's
publicity, the bank runs more

Setting New Standards of Performance

More than thirteen years DBLTA DATA. For the user with small systems

marketing video display terminals. In all that time we combines a 'super sman' DEFTA 2200 display

have been falking, and emofully fistening to tenamal - germinal, a powerful mucro computer with integral

system designers and users to define the feature macra discs and a versatile printer. To this well

profile of the ideal display terminal. A matched set of handware we have added DELTA's

We have now combined all of that knowledge and own File Mainteenium System (FMS) which pravides experience of physicise the DELFA 2200 Stries, the large addition to our comprehensive range of high quality ASCH terminals. It has been developed in the budget of the body such a record-by-record basis to block-model and CPAM business computing application to be bounded.

United Knigsdom with the receds at the butopess, computer there in mind and it provides all the Whether you are an end user, a system designer or

operating and system features most requested by an OEM, the DELFA 2000 Series has something for

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There are three models in the series which is

\* Message Switching Systems

\* Telex Compatible Systems \* Forms Mode Data Entry

\* Test Preparation Systems

\* Protocol Communications

and there are many more.

\* Date Entry/Information Retrieval

designed to cover a wide spectrum of applications.

expects to double up on all these figures, by which time it will have over 1,000 ATMs in operation.

Nat West is a wide-ranging buyer (unlike Lloyds which lias Statistical information showing

become one of the most dyed-inthe-wool IBM users on record). NatWest prefers to make a point of using a choice of suppliers, its ATMs (the models 770 and 1780) come from NCR and it runs IBM

This policy of using a choice of suppliers is loudly advocated by Cyril Townsend, general manager of the Management Scrvices Division. Townsend's wast range of responsibilities ambrones all DP and ponsibilities embraces all DP and clearing operations as well as printing, stationery purchasing, O&M, and even catering.

It is significant that Townsend is essentially a DP boffin despite the variety of Itis concerns, and his auspicious history includes managing directorship and chairman of Centre-file. Despite his reticence to talk publicly, he emerged from his ivory tower last year to drop some scenty pearls of wisdom into

His greatest boast involves new plans for a totally automated bank. which will operate out of normal

banking hours and provide cash

Brian Keyte, NatWest's senior executive in charge of planning and development, has been tactful

irst project experiment. The manager at the chosen branch was highly co-operative, and following an initial pilot scheme last May it appears NatWest is now set to ex-

This scheme was based on the nstallation of an IBM 8100 comnunications-oriented minicomaccessing the system locally and others at another smaller sub-office at Hinchley Wood. The addresses and historical records, in addition to selected security

acbeme might undermine the authority of the manager, the aystem emerged as a public relauons aucceas, with the branch manager enthusiasucally praising the contribution of the computer out by the systems development team at Goodman's Fields, as well.

manual prodecures,"

There are as yet no reported efforts to integrate such facilities with full-blown word processing systems. These are for the most part centralised within the bank, and tend to handle specific tasks, like the 85 Wordplex standalone systems in Birmingham used for international and bome loans

Hamlets, Goodman's Flelds, and Kegworth in the Midlands. documents and standard letters. The bank also appears to be more involved with the prospect of The Goodman's Fields centre is its pride and joy, for reasons in Townsend.



have its work cut out to gain im-mediate acceptance of such inno-

and the video terminals involved in the experiment were no exception.

necessarily want a

services such as

arranging loans,

People don't

full range of

ordering

travellers'

so we are

interested in

providing self-

service banks.

there, just for

guidance

smaller VDUs.

man's Fields.

They may not be

totally unmanned.

Somebody will be

records, but a significant quanuty

NatWest's central data proces-

sing facilities are located at Tower

cheques or

Another lesson learnt in the Sur-

interfacing WP systems with its mainframe configurations rather than surrepunously introducing withdrawals and dispensing facilides to the visitors of a large

shopping centre. It appears that such totally auto-mated banking facilities are an important feature of NatWest's ture plans, the only impediment being objections on the part of the tive computer systems at branch level. Managers will clearly have to learn some different skills, such as the adaption of customers' historiunions, CBU (Clearing Bank Union) and BIFU (Bankuig Insurance and Finance Union).

Yet objections from the union cor are less likely to affect cal notes recorded during inorand-new projects than the automation of existing branches .. Moves to automate at branch level have to be taken with great care what distasteful to some of the more hardened, long-serving bank managers, and clearly NatWest's operations management is going to

branch level.

end the experiment

onceing work carried

Brian Keyte pointed out that "although we retain the manual records the staff at Surbiton would not be at all pleased if we took the systems away . . . I belive that they had to return to their previous

This seemingly modest, but important move is being followed up by similar schemes, using both packaged and custom designed

cularly interesting because the branch and sub-branch used the system for their own internal of data was also regularly commu-nicated from the 8100 to the vast mainframe configuration at Good-

cluding its remarkably speedy planning, building and occupancy cycle in around four-and-a-half such units at the branch level. some months ago as the first in Europe to install a 16-megabyte IBM 3081, pipping Lloyds at the sons on the implications of intro-ducing business and administra-

1BM's heavyweight systems will be followed by a further three 3081

The work carried out at Good-man's Fields is hefty, involving record-keeping for some 10 million secounts and clearing about two

million cheques a day.
In addition to this the bank runs dedicated systems handling every-thing from personnel records and traveller's cheque processing, to standing orders, direct debits international operations and SWIFI (Society for Worldwide Interbank biton experiment concerned ergo-nomics. Banking office parapher-nalia is infamously cumbersome inancial Telecommunications).

A number of medium-scale 3033 systems drive a further 5,000 terminals, which (in support of the bank's philosophy of selecting from different suppliers) came from Burroughs.

Deapite this belief in purchasing from a selection of suppliers Cyrl Townsend does not show enthusiasm for some of the smaller manufacturers on the banking scene, like Fortronic. On his owa admission he likes to see the bank buy from the larger, more finan-

cially robust companies.

The future of NatWest looks to be biased in favour of developing retail point-of-sale systems. Having reached an agreement on point-of-sale last November, the clearing banks will be looking to the NCRs, Philips, Chubbs and IBMs for some useful solutions, and NatWest is likely to be in the forefront of those planning the developments, along with further ingenious strategies for automated

"People don't necessarily want full range of services such as order ing traveller's cheques or arranging loans," pointed out Brian Keyte, "so we are interested in providing self-service banks. They Future projects will, according to Brian Keyte, require the use of may not be totally unmanned There will be somebody there just The Surbiton project was parti-

for guidance."
Automation promises a bright if complicated future for Nat West. There will be more ATMs, more automated facilities for paying money in, redirecting it, established the contraction of cancel. lishing standing orders or cancel-

It is also likely that Nat West's recent interest in video systems signifies a future trend although viewdata-style bome banking still a distant prospect for the june being, according to Gyrll

PRODUCTS



### **Protective** disc file

A STORAGE system for mini discs (above) which will encourage operators to file discs correctly, avoiding the risk of errors from dust or mishandling, bas been

launched by Willis.
The Willis Mini Disc File has 10 sections, each with a lift mechanism which enables discs to be displayed five at a time. Each disc is positively located in individual guides, remaining filed whether the box is full or not.

Lockable and atackable with non-tlip rubber feet, the file can be carried easily and safely around the

Road, Bisbap's Stortford, Herts. | cation;

A DATA terminal/electronic type-writer which can be used online to a range of computer systems has been launched by its distributor, Dataplus. Scripta II is manufac-tured by Olympia International in

Data terminal

is also a

The typewriter will be available in both RO and KSR versions, each offering the same range of features and options. Features available for the first time on the

Scripta range are aa follows: A 17" carriage as standard;
 Can be specified with either RS232, Centronics or Commodore

Pet interfaces;
- The KSR is based on Olympia's ES105 dalsywheel typewriter, having as standard, 10, 12, 15

apacing;
- Scripta II incorporates a 4K buffer store selectable to 2K or 0, depending upon the type of appli-

ing a hood over the typing area,

- Both RO and KSR can be fitted

providing 96 standard, italic, OCR-B or acientific characters, while carbon or fsbric ribbon cas-sertes in various coloura can be

The dual-purpose KSR has been designed for use online to all miniand microcomputer systems. Off-line the KSR takes care of all normal office typing requirements via a control on the keyboard, says

Dataplus.

Dataplus Ltd (CW), 39-49 Roman Road, Cheltenham, Glos GL51 8QQ. Tel: (0242) 30030/37373.



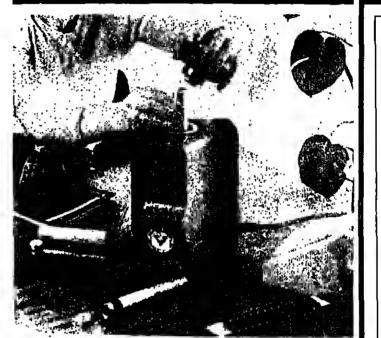
A BIT image printer is now available for the same price as a text printer, claims its manufacturer Epson.

The MX-80F/T Type 2 dot matrix printer (seen above) operates bidirectionally at 80 cps, and features a full 96-character Ascii set

dard, with an option on RS 232C or IEEE 488 interfaces.

The price of the MX-80F/T

Epson UK Ltd, (CW), Dorland House, 388 High Street, Wem-hley, Middlesex HA9 6UH. Tel: 01-900 0466.



## Microfiche destroyer

A DESKTOP microfiche des-troyer using the thermofusion des-truction process is available from Volumetic of Coventry.

Aimed at senior personnel in commerce, industry, government and research establishments, advertising, banks and private secur-ity organisations, the device en-ables the individual to destroy top-security and seositive information speedily in the privacy of his own office.

Compact in size — measuring 24 cm high by 18 cm wide and 19 cm long and weighing 1,700 grama — the unit is less bulky and less expecasive than any alternative 4227.

Thermofusion ensures total destruction of microfiche automatically in minutes. There is no exhaust, amoke or toxic residue. To use the device, the microfiche is inserted into a roll which is in turn itself placed in the

To operate the unit it is plugged into the nearest 220/240 volt electrical supply.

The microfiehe destroyer costs

#### Single-board disc controller

THE Western Peripherals DG-251
Universal Storage Module Disc
Cootroller is designed for use with
DEC LSI-11 computers.

The aingle-board DC-251 ac
intermixing of drive sizes on the same controller.

The DC-251 is designed to mount directly into any Quad Qbus slot. Data transfer sthrottled

commodates one or two of the large capacity disc drives in the range of 40 to 600 megabytes each. When used with the CDC 9762 80-megabyte drives the CDC 9762 80-megabyte drives the CDC 9762 megabyte drive, the DC-251 emu-lates and is media compatible with the DEC RM02 systems, running standard functional diagnostics, RSX-IIM and RSTS without patches, says Wesper.

The controller has separate registers for each drive, allowing for while operation continues on another drive. Each drive port has a drive set-up switch that allows

Wesper International UK

Wesper International UK

(CW), 1st Floor, The Parade,

Frimley, Camberley, Surrey

GU16 5HJ. Tel: (0276) 20934.

automatically depending upon the BDMR demand of other Q-but devices. The three sector data but fer eases bus priority problems which allows positioning almost anywhere on the bus without fear of data late errors, Wesper claims.

Bror correction coding and decoding is a feature of the controller

ecture. Optional RP06 emu lation and expanded and contracted RM02 for integration of CMD drives is available.



randem Computers has announced its own ergonomic termi-

NonStop transaction processing systems. The Tandem 6530 is de-

signed to be friendly and easy to

Concept 32/87

always comes out on top

At £140K, Concept 32/87 is power at a price which is well below that of any comparable system. For example, IBM's 4341-2 system, giving about 2 MIPS, would set you back around a cool £200K. A VAX 11/780 system, giving 1.1 MIPS would cost you around £108K and Prime's 850 system giving 1.6 MIPS, would cost you around £175K.

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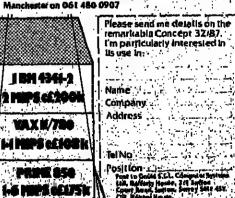
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#### COMPUTER WEEKLY, March 25, 1982

## Hole-in-the-wall cash dispensing is only part of the move towards self-service . . . Anthea Ballam reports

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Nevertheleas, the average value

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£23. This indicates that users do not feel embarrassed at making placing it shead of its nearest rival,
Lloyds in the great ATM technology race.
Today, according to NatWest's
publicity, the bank runs more

**Setting New Standards** 

of Performance

SYSTEMS has been designing, infinite fundamental requirements their is System 2000 which marketing video display terminals. In all that time we combines a 'ampler sman' DUTTA 2200 display.

have been talking and carefully listerage to terminal archimat, a powerful micro computer with integration

system designers and users to define the feature micro-discs and a versable printer. To this w

profile of the ideal display terminals.

We have now combined all of that knowledge and expensence to preduce the DBTA 2300 Series, the latest addition to our comprehensive range of high quality ASCII terminals. It has been developed in the United Kingdon, with the needs of the European Whether viii are an endusery a system deviagor as Whether viii are an endusery a system deviagor as Whether viii are an endusery a system deviagor as

computer user in mand and it provides all the operating and system learness most requested by an OEM, the DELFA 2000 Series has something for

Do you want to know mare? Call DELTA today.

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Delta Data A

Botel, March Hist to April 2ml.

than thirteen years DELTA DATA

designed to toter a side spectrum of applications and disciplines. Here are some

\* Message Switching Systems

\* Telex Compatible Systems
\* Forms Mede Data Lintry

Test Preparation Systems

Protocol Communications

and there are mais more

\* Data Enjey/Information Retrieval

By the end of next year the bank expects to double up on all these figures, by which time it will have over 1,000 ATMs in operation.

Nat West is a wide-ranging

buyer (unlike Lloyds which has become one of the most dyed-in-the-wool IBM users on record). Nat West prefers to make a point of using a choice of suppliers, its ATMs (the models 770 and 1780) come from NCR and it runs 1BM

This policy of using a choice of suppliers is loudly advocated by Cyril Townsend, general manager of the Management Services Division. Townsend's vast range of responsibilities embraces all DP and clearing operations as well as printing, atauonery purchasing, O&M, and even catering.

It is significant that Townsend is essentially a DP boffin despite the variety of Itis concerns, and his auspicioua history includes managing directorship and cliairman of Centre-file. Despite his reticence to talk publicly, he enterged from hia ivory tower last year to drop some scanty pearls of wisdom into the ears of the public.

His greatest boast involves new plans for a totally automated bank, hanking hours and provide cash



Meanwhile, back in Surbiton there have been many object les-

sons on the implications of intro-ducing business and administra-

Sucb constraints may be some-

what distasteful to some of the

more hardened, long-serving bank managers, and clearly Nat West's

Another lesson learnt in the Sur-

nalia is infamously cumbersom and the video terminals involved in

the experiment were no exception.

necessarily want a

services such as

arranging loans,

People don't

full range of

cheques or

interested in

providing self-

service banks.

They may not be

totally unmanned.

Somebody will be

there, just for

guidance

ordering

travellers'

so we are

TOWNSEND . . . Plans include a totally automated bank

It appears that such totally auto-mated banking facilities are an Important feature of NatWeat's future plans, the only impediment being objections on the part of the unions, CBU (Clearing Bank Union) and BIFU (Banking In-

surance and Finance Union).
Yet objections from the union sector are less likely to affect brand-new projects than the auto-mation of existing branches... Moves to automate at branch level have to be taken with great care nd delicscy.
Brian Keyte, NatWest's senior

executive in charge of planning and development, has been tactful in the introduction of automation

irst project experiment. The manager at the chosen branch was highly co-operative, and following an initial pilot acheme last May it appears NatWest is now set to exend the experiment.

This scheme was based on the nstallation of an IBM 8100 comnunications-oriented minicomputer running at the main branch with eight video terminal users accessing the system locally and others at another smaller sub-office at Hinchley Wood. The ddresses and historical records, in addition to selected security

After some doubts that the scheme might undermine the authority of the manager, the system emerged as a public rela-tions success, with the branch manager enthusiastically praising

and the pleneering work carried out by the systems development team at Goodman's Fields, as well.

Brian Keyte pointed out that "although we retain the manual records the staff at Surbiton would not be at all pleased if we took the systems away . . . I belive that they would find it very irksome if they had to return to their previous

Future projects will, according to Brian Keyte, require the use of smaller VDUs.

The Surbiton project was paracularly interesting because the branch and sub-branch used the manual prodecures." This seemingly modest, but im-portant move is being followed up by similar schemes, using both packaged and custom designed oftware.

There are as yet no reported efforts to integrate such facilities with full-blown word processing ystems. These are for the most part centralised within the bank,

withdrawals and dispensing faciliiles to the visitors of a large
shopping centre.

It appears that such totally auto
interfacing WP systems with its cluding its remarkably speedy mainframe configurations rather planning, building and occupancy cycle in around four-and-a-half such units at the branch level. years. It gained further attention some months ago as the first in Europe to install a 16-megabyte IBM 3081, pipping Lloyds at the

> The installation of the latest in IBM's heavyweight systems will be followed by a further three 3081

tive computer systema at branch level. Managers will clearly have to lesrn some different skills, such as the adaption of customers' historical notes recorded during in-The work carried out at Goodman's Fields is hefty, involving record-keeping for some 10 million accounts and clearing about two million cheques a day.

In addition to this the bank runs dedicated systems handling everything from personnel records and operations management is going to have its work cut out to gain im-mediate acceptance of auch innotraveller's cheque processing, to standing orders, direct debits in-ternational operations and SWIFT (Society for Worldwide Interbank Financial Telecommunications). biton experiment concerned ergo-nomics. Banking office parapher-

A number of medium-scale 3033 systems drive a further 5,000 terminals, which (in support of the bank's philosophy of selecting from different suppliers) came

Despite this belief in purchasing from a selection of suppliers Cyril Townsend does not show enduaisam for some of the smaller manufacturers on the banking scene, like Fortronic. On his own admission be likes to see the bank buy from the larger, more finan-

buy from the larger, more cially robust companies.

The future of NatWest looks to be biased in favour of developing retail point-of-sale systems. Having reached an agreement on point-of-sale last November, the clearing banks will be looking to the NCRs, Philips, Chubbs and IBMs for some useful solutions, and NatWest Is likely to be in the forefront of those planning the developments, along with further and Nat West Is likely to be ingenious strategies for automated

"People don't necessarily want a full range of services such as order-ing traveller's chequies or arrang-ing loans," pointed out Brian Keyte, "so we are interested in providing self-service banks. They may not be totally unmanded. There will be somebody there just

## Data terminal is also a typewriter

**Protective** disc file

A STORAGB system for mini discs (above) which will encourage operators to file disca correctly, avoiding the risk of errors from dust or mishandling, has been

lauoched by Willis.
The Willis Mini Disc File has 10 sections, each with a lift mecbanism which enables discs to be displayed five at a time. Each disc s positively located in individua

PRODUCTS

guides, remaining filed whether the box is full or not.

Lockable and stackable with noa-slip rubber feet, the file can be carried easily and safely around the

Willis Computer Supplies Ltd (CW), PO Box 10, South Mill Rosd, Bishop's Stortford, Herts.

A DATA terminal/electronic type-writer which can be used online to a range of computer systema has been launched by its distributor, Dstaplus. Scripta 1I is manufactured by Olympia International in

- Operating noise has been reduced to minimum, by incorporating a hood over the typing srea, making the unit one of the quietest currently svailable;

- Both RO and KSR can be fitted

The typewriter will be available in both RO and KSR versions, cach offering the same range of festures and options. Features available for the first time on the Scripta range are as follows:

- A 17" carriage as standard;

- Can be specified with either RS232, Centronics or Commodore

The dual-purpose KSR has been designed for use online to all mini - The KSR is based on Olym-pia's ES 105 daisywheel typewriter, having as standard, 10, 12, 15 characters per inch or proportional

- Both RO and KSR can be fitted

- 12 exchangeable daisy type-wheels will be available, each providing 96 standard, italic, OCR-B or scientific characters, while carbon or fabric ribbon cas-

line the KSR takes care of all normal office typing requirements via a control on the keyboard, says

spacing;
— Scripta II incorporates a 4K
buffer store selectable to 2K or 0,
depending upon the type of application;

Dataplus

Tandem terminal

TANDEM Computers has announced its own ergonomic termi-nal which forms part of its NonStop transaction processing systems. The Tandem 6530 is de-

signed to be friendly and easy to use, with fast response time.

Tandem Computers Ltd (CW), Peel House, 32/34 Church Road, Northolt, Middx. Tel: 01-841 7381.

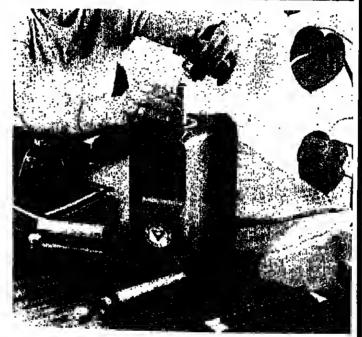
Bit printer price down

able for the same price as a text

The MX-80F/T Type 2 dot matrix printer (seen above) operates bidirectionally at 80 cps, and fea-tures a full 96-character Ascii set with deacenders. A Centronics-style 8-bit parallel interface is stan-

The price of the MX-80F/T Type has been reduced to less than \$2400.

Epaon UK Ltd, (CW), Dorland House, 388 High Street, Wein-bley, Middlesex HA9 6UH. Tel: 01-900 0466.



## Microfiche destroyer

A DESKTOP microfiche destroyer using the thermofusion destruction process is svailable from Volumatic of Coventry.

system available in the UK, say the makers.

Thermofusion ensures total destruction of microfiche automat

Aimed at senior personnel in commerce, industry, government and research establishments, advertising, banks and private security organisations, the device enables the individual to destroy top-security and sensitive information speedily in the privacy of his own office.

Compact in size — measuring 24 cm high by 18 cm wide and 19 cm long and weighing 1,700 grams — the unit is less bulky and less expeasive than any alternative services of the compact in size — measuring 24 for the initial compact in size — measuring 24 for the

truction of microfiche automatically in minutes. There is no exhaust, smoke or toxic residue.

To use the device, the

microfiche is inserted into a roll which is in turn itself placed in the To operate the unit it is plugged into the nearest 220/240 volt ectrical supply.

The microfiche destroyer costs

Single-board disc controller

THE Western Peripherals DG-251
Universal Storage Module Disc
Controller is designed for use with
DEC LS1-11 computers.

Intermixing of drive sizes on the same controller.
The DC-251 is designed to mount directly into any Quad Q but alot Data transfer is throttle

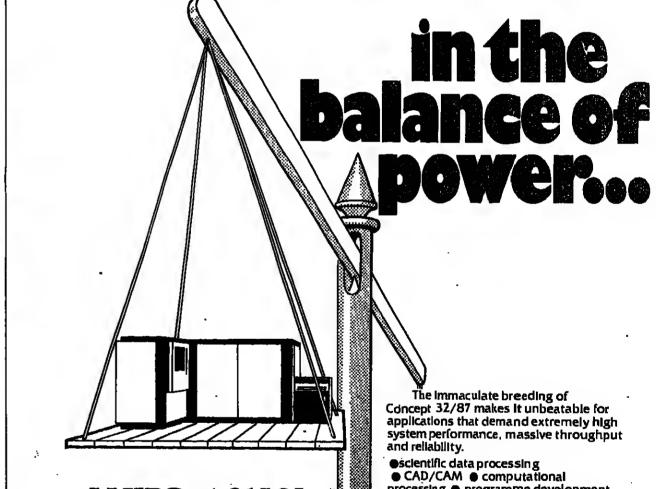
The single-board DC-251 accommodates one or two of the large espacity disc drives in the range of 40 to 600 megabytes each.

When used with the CDC 9762 80-megabyte drives the DC 251 megabyte drive, the DC-251 emulates and is media compatible with the DEC RM02 systems, running standard functional diagnostics, RSX-11M and RSTS without patches, savs Wosser patches, says Wesper,

mount directly into any Quad Q bus alot. Data transfer is throttled automatically depending upon the BDMR demand of other Q-bus devices. The three sector data buffer eases bus priority problems which allows positioning almost anywhere on the bus without fear of data late errors, Wesper claims.

Error correction coding and decoding is a feature of the controller

coding is a feature of the controller ecture. Optional RP06 emu lation and expanded and contracted RM02 for integration of CMD drives is available.



4 MIPS at £140k Concept 32/87

always comes out on top

At £140K, Concept 32/87 is power at a price which is well below that of any comparable system. For example, IBM's 4341-2 system, giving about 2 MIPS, would set you back around a cool £200K.

A VAX 11/780 system, glving 1.1 MIPS

would cost you around £108K and Prime's 850 system glying 1.6 MIPS, would cost you around £175K.

At nearly 4 million Whetstone Instructions per second, Concept 32/87 brings new significance to the notion of cost-effective computer power.

As the latest addition to Gould S.E.L.'s evolutionary 32 series, Concept 32/87 incorporates the benefits of over ten years. of supremacy in 32 bit mini computer technology which has developed a range of price-performance winners starting

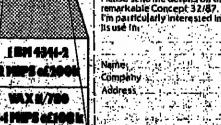
The immaculate breeding of Concept 32/87 makes It unbeatable for applications that demand extremely high system performance, massive throughput

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is the force, Price against power, Concept 32/87 is unsurpassed, All prices based on typical minimum configurations

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GOULD

The Surbiton project was pardcularly interesting because the
branch and sub-branch used the
system for their own internal
records, but a significant quantity
of data was also regularly communicated from the \$100 to the vast
mainframe configuration at Goodman's Fields.

NatWest's central data processing facilities are located at Tower
Hamlets, Goodman's Fields, and
Kegworth in the Midlands.

The Goodman's Fields centre is
its pride and joy, for reasons in-The controller has separate registers for each drive, allowing for cor
smulation of overlapping seeks
while operation continues on
another drive. Each drive port has
a drive set-up switch that allows Systems Ltd. AA  $\Delta\Delta\Delta$ and tend to handle specific tasks, like the 85 Wordplex standalone with our 32/27 from around £40K. Wesper International UK (CW), let Floor, The Parade, Frimley, Camberley, Surrey GU165HJ. Tel: (0276) 20934.  $\Delta\Delta\Delta\Delta$ Gould S.E.L. Computer Systems systems in Birmingham used for international and bome loans d S.E.L. Computer Systems

Biocirprius a Electrical Products

AUSTRALIA BELCHUM CANADA COLUMBIA IRANCE HOLIAMO ITALY WARN MEXICO SWEDZI THANAGO DE USANAGE COMPA JELTA L7ATA documents and standard letters. Kegworth in the Midlands. atill a distant.

The bank also appears to be more involved with the prospect of its pride and joy, for reasons in Townsend.

COMPUTER companies are faced with a bewildering choice of exhibitions on their calendars. Compec

covers practically the entire mar-ket, but manufacturers also want

an exhibition to address their par-

ticular market segmeot. Peri-

The show is organised by the

pherals 82 is one such exhibition.

Peripheral Suppliers Association (PSA) and sponsored by Computer Weekly's sister journal, Systems

International. The PSA is a free

trade association whose primary

purpose is to represent the in-

terests of independent computer peripheral auppliers trading in the UK. There are currently 32 asso-

pose-built for companies like it-

self. It has a small stand and will

PERIPHERALS

temperature of the water once,"

the show should be extremely



This three-page feature previews the Peripherals 82 exhibition . . . On this page David Casey assesses the market

to the casual ubserver to lack a a manufacturer of acoustic

The observation may have been true in the past, but these complementary product groupings represent divergent technologies in a convergent marketplace.

The recent movement towards integrated husiness systems and office automation is proving the critical factor in peripherals activ-ity. Advances in technology are affecting the peripherals market most dramatically in the area of disc storage. Distributed data processing has been shifting the emphasis of computer systems from increased power in the processor, to a more cost-effective method of data storage.

While capital cost and data capacity are key factors in the development of storage systems, the aim for reliability to match that of the processor is now the primary target of peripheral manufacturers. Winchester discs, as sealed units, are able to accept a more hostile environment than conventional bard discs.

A major growth area in the pen-pheral market is the mini-Winchester - a 514-inch sealed unit.

Geoff Seabrook, a program manager with Memorex, admits that his company was in that parti-cular market too early. "We were competing with Control Data from the start, but the market was not ready for the product. We are now

## encompassing products as diverse as visual display units and mass data storage devices, the British peripherals market appears to the neural wheeter the peripherals market appears. tain that there is no single market for peripheral devices, as a supplier of Winchester drives poses little threat of conspectation to a manufacturer of security

the lead bas already been anapped from us by Seagate and Tandon." It is significant that the

Memorex mini product is being manufactured during 1982 in Ja-pan – the source of many advances in storage disc systems. At the other extreme (systems with a capacity of 300 megabytes

or more) Japanese suppliers will be no less iotrusive in Europe. By the end of 1985, Fujitsu, Hitachi and Nippon Peripherals will account for the majority of high-capacity units imported from the Far East, with drives compatible with corresponding IBM systems.

Demand for mass storage discs needed to support expanding cen-tral databases is stimulating the market for discs with capacities in local area networks will provide a excess of one gigabyte (1,000 Mbytes). Memorex is heavily pheral suppliers during the next involved in this sector and reports two years. While much of the ina 45% annual growth rate in the

capacity could now be rising by

These broad estimates do not represent true market potential, owever, but production volumes which are consistently below the

During the 1970s several poten- device can be connected to an

far failed to crode its position. The bubble memory and charge-coupled device technology, for example, are not replacing disc

Seabrook is confident that in one form or another, rotating disc technology will remain the principal storage method for the re-mainder of the decade. 'Laser discs will certainly have an impact on the market, but do not represent a significantly different trehnology from the magnetic oxide device. The hardware needed to

support laser storage is only margially more complex. The convergence of traditional data processing with word proces-sing, database management and msjor marketing platform for peri-

terest will focus on processors and installed capacity of large discs.

In the United States, 1BM was quoting a similar figure until the beginning of the year, when its revised estimates showed that hardware.

mass atorage units for local area network systems, a secondary market will develop in data capture terminals and communications hardware.

Roger Cockran, product man-ager at Hamiltoo Rentals, outlined his view of these developments.
"Salesmen will be inputting data
in the field on a portable terminal
auch as the Hewlett-Packard HP 745. Wheo they return home, the

routed to the appropriate worksta-Cockran sees the ideal local net-

work as one which is independent of any single manufacturer's peripherals. "It appears that the most flexible approach is to have processors cootrolling access to a system as an integral part of the network. Peripheral devices would link to these nodes through standard RS232 interfaces — a perfectly adequate standard."

He maintains that this would

have two advantages. "If the processor is freed from the chore of monitoring the line to check the

THE Peripherals 82 Exhibition will be at the West Centre Hotel, Lillie Road, London SW6, Wednesday to Friday March 31-April Opening times are 10am to 30pm on Wedoesday and Thursday, and 10am to 4.30pm

A list of exhibitors and their stand numbers is oo page 22.

address of every packet passing through, it can function more efficieotiy. But more important is the greatly increased range of options for linking peripheral units to-gether through such a oerwork."

Networking will allow low-cost workstations to share comparatively expensive resources, but the trend must continue towards "economy" peripherals. Purchasera of Apples and Pets, for example, but efficient printers. Qume and Diablo daisywheel printers, which have succeeded the golf-ball printer in word processing applica-tions are at least as expensive as the microcomputer in many con-figurations. In order to keep the

figurations. In order to keep the total price of a system below £2,500, a lower-cost letter quality printer is required and the Japanese Ricoh daisywheel la finding a ready market at a price of between £850 and £1,000.

Word processing and traditional DP applications make very different demands on output devices so that purchasers have been prepared to buy a high-quality printer for text and a higher throughput matrix printer. for throughput matrix printer, for

Provided that the speed of a line printer to not required, compro-mise may be found in the form of a multi-pass needle matrix. Bach

an image: subsequent passes with the head shifted fractionally im-

Richard Kendali, sales manager of Real Time Developments, which markets the Sanders range of needle printers, explained the popularity of such devices. "They represent a corobination of cost and convenience. In a single unit, the user is acquiring a matrix printer for the run-of-the-mill jobs and printer which is capable of producing low-level typeaciting."

Despite the cost of such a hybrid rinter - at least 25% more than a Qume or a Diablo daisywheel -Kendali sees a rapid growth in this sector of the market. "There are already several specialised Apple installations for the printer: the applications demand a machine which can offer a range of character sets and can cope with several

Compatibility has proved to be the major obstacle to the acceptance of Sanders equipment in general office applications: the device is currectly available only with Centronics parallel and RS232 serial interfaces. Kendall

Qume and Diablo interfaces will In the viaual display sector,

compatibility is oot less important an issue. De facto standards emerge which suppliers may choose to reject at the risk of being isolated from the mainstream mar-

for DEC peripherals in the UK, it was inevitable that there would be

several suppliers of DEC-lookalike

equipment. As major distributors

of DEC computers, Hamilton is

the two main factors, Cockran observed. "We have opted for the C.Itoh range of VT100-compatible

terminals, on the grounds that

facilities which are not available oo,

This approach is indicative of trends in the UK market as a

whole: whatever technologies un-

derlie a product's development, total compatibility at minimum cost must be the manufacturer's

the standard DEC VT100."

"Cost, and ease of upgrading are

aware of the trends in this area.

Roger Cockran of Hamilton is critical of DEC's involvement oo graphics terminals, for example.
"The problem is that DEC has chosen not to make its graphics screen compatible with the Tektronix 4010 standard. A great deal of software has been written around this system, with the sharp

Control Data is an old hand at exhibitions and knows how to keep its costs down: "It is not a mammovement towards graphics terminals in specialist commercial applimoth cost exercise as our literature is usable at all shows and we only But Digital Equipment, like IBM, has established itself as a have to hire the stand," says standard in the non-graphics sector. Given the size of the market

successful.

Also showing OBM equipment is Siemens. Derek Jacksoo said his eempany is using the show to establish itself as a forerunner in inkiet mrehanisms. Among its exhibits will be floppy disc drives, printer modules, the PT80H printer for sirline ticket format, cootinuous stationery and the PT801 printer which uses a drop-oo-demand inkjet mechanism.

Data Dynamics manufactures peripherals. It will be showing the complete range of ZIP products, printers and paper tape punches. The DD1303 is a home designed and manufactured dot matrix printer operating at 120 charactera per second (cbps), costing £998.

Data Dynamics' main exhibit is the ZIP 585 paper tape punch, capable of reading and punching

cistion members, many of which will be represented at Peripherals Control Date, a PSA member, feels that the show has been pur-

concentrate on its range of OEM peripherals. "We had to test the

says OBM marketing services manager Dave Bennett, "but if the last two years are snything to go by

Pragma has a dot matrix line printer, the Printronix MVP2 fea-

Features include alphanumeric printing, graphics, bar codes, OCR labels and business forms. The MVP2 is Centronics and Dataproducts compatible, with RS232 and a oumber of IBM, Burroughs and ICL interfaces optio-

Other products include the Printronix range of dot matrix printers, covering 150 to 600 lpm, the Daisy M50 daisywheel printer, a wide range of visual display units from Visual Technology and a colour printer which uses a three colour ribbon on standard fanfold

Real Time Developments has a five and eight level tapes. It can new model printer from Sanders read telex tape which may then be mounted on a printer or with a fonts enabling users to print char-

Mellordata un'il show the touch tensitive terminal that proved so valuable at Compet.

mathematical character sets and arabic characters. There are six sockets accessible to the user and each font pack contains two different character sets.

Show 'purpose-built' to keep

suppliers in the public eye

Other features include a draft dot matrix button for quick copies and the speed ranges from 39 characters per second to 624 characters per second. The company is using the show to exhibit this machine for the first time in working order and aims to become known as the distributor for it. "Any London venue draws in the crowds and is

TUFFS ... low-cost graphics.

attractive to us," says Richard Kendall of Real Time De-

Data Type, a South Wales based

computer terminal and systems

mantifacturer, is giving a new pro-

duct line its public debut at Peri-

pherals '82. The Autograph range

of graphics display terminals are the first to emerge from Data Type

as a result of its funding from Ciu

corp Development capital under its high technology scheme.

ics display terminals costing from £1,250. Features include 512 ×

250 dot rostrix resolution, microprocessor to handle point

plotting, vector geogration, com-

mand decoding and alphanumeric displays. They can be linked to

Autograph graphics printers t

provide the user with a graphic

Gerry Tuffs, Data Type's managing director and chairman says, "This range gives a new identity to the expanding range of Data Type

the expanding range of Data Type graphics products. We aim to offer

a low-cost route to complex graph-

traditional graphics terminals."

Data Recording Equipment will

ics at a fraction of the price

work station.

The range comprises five graph-

solution colour graphics.

Showing for the first time in this country is a new addition to the range, the 3270-S terminal, a low priced plug-compatible alternative to the IBM 3275 and 3276 synchronous terminals. Mellordata will also exhibit a range of touch sensitive terminals operated by touchlog the screen, thereby dispensing with conventional key-

displayed on a VDU.
Gresham Lion claims it was very

successful at Microsystems '82 and

is boping for a similar response

from the crowda at Peripherals.

Oo its stands it will display the LYME 6,000 colour VDU with a

graphics option.
Another VDU exhibitor is Mel-

lordats. It will show a range of video terminals for IBM, DEC and

Data General users. Prices start at

mat terminal with two full pages of buffer information, and go up to £3,500 for terminals with high re-

Competing with Mellordata is Teleprinter Equipment showing ita Teleray apace-saving VDUa. Instead of the conventional layout of a TV size box plus keyboard, they comprise a nine-inch screeo supplied with a universal clamp, detached keyboard and a separate unit containing the power supply and logic boards. Teleprinter Equipment is slso among the many companies exhibiting printer ter-minals, both dot matrix and dai-

turing three modes of operation. It operates at 80 lines per minute (lpm) using a 13 × 9 roatrix to produce word processing quality print and graphics at a speed of 150 lpm or a 9 × 7 matrix for compressed print. It is targeted at the small ayatems market.

nally available.

Tracy Ebbetts takes a look at some of the VDUs, printers, tape punches, and disc drives that will feature at the show

Many exhibitors this year feel that Penpherals '82 is an effective way of keeping products in the public eye between the larger

Steve Deen of Trend Commu-

This year Trend will exhibit its recently announced Trend Printer 880. Printing at the rate of 100 chps bi-directionally, the 880 is available in Keyboard Send Receive (KSR) and Receive Only

Four character sets are provided

printers, the 8925, and to demons trate for the first time a number of new features and options now available for the series.

New features include a fron

feed device for banking, hotel, and point of sale applications, and a cut sheet feeder which can handle up to 200 sheets of paper for high volume word processing applica-tions. It will also demonstrate a new bi-directional paper feed for

nications says, "Compec is the big show for us and we were successful there last year. Peripherals '82 is the only abow in the South East between Compec shows where we can keep the interest in our pro-ducts alive."

as standard and it can print expanded and compressed characters on various column widths at five, 10 and 20 characters per inch with selectable line spacing to three, six, eight, or 12 lioes per incl.



The show provides a chance to convince the doubtful.

More and more new industries are today choosing areas.

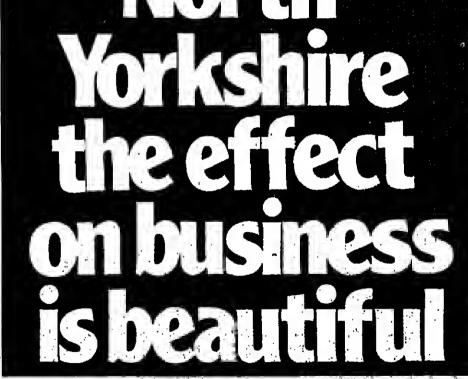
If you want an unspolit labour force, high productivity, good communications, a wealth of talent, reduced operating costs and a beautiful area to live, work and raise your family

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•SKIPTON • THIRSK • WHITBY • YORK



The latest in Winchester disc technology - a removable carvidge in the Lynx DP-100 from X-Data,

PERIPHERALS-3

#### Jon Whiteley provides a shopper's guide to leading edge technology and products and more established offerings

## Basic choice is between higher performance and reliability

WHEN one is in the market to buy peripherals for a computer it is best to start by deciding whether to go for the latest, leading edge technology product or for a device which embodies more familiar of

proven technology.

To enjoy the benefits of either type of device means sacrifices.

Leading edge products usually have high performance specificatinns as an attraction, but one of the sacrifices is often in the aren of reliability since production quality can be uncertain when the product fresh from the developmen

duet which has been produced in volume for a year or so may be quite reliable and easy to obtain in large quantities but it may not perform to match expectetions. For those building a system, an outdated peripheral may bring down the performance of the entire system to its level.

This, then, is the basic decision to be made befare tooking more closely at the offerings of different

manufacturers. Computer peripherals fall into three main categories: input de-

The most important input device is the VDU, which has replaced the teletype.

#### **VDUs**

Despite the fact that the VDU market is experiencing a vigorous growth which outstrips that of the computer industry as a whole, the echnology itself by contrast shows

a pattern of gradual evolution. The display is similar to that found in any television, and hy the standards of the rest of the compuer industry, is an ancient device. But the cathode ray tube is still with us because no serious challenger has emerged. Plasma and liquid crystal disclays are still found only in specialised applications and it seems unlikely that they or any other type of display will be extent the suprement of the will threaten the supremacy of the CRT in the next four or five years.

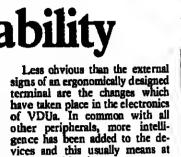
The VDU keyboard is contin-ually being refined, but there have been no startling changes in the last few years. If the CRT and the last few years. If the CRT and the keyhoard heve only changed facturers, but it does lead to wide slightly then there are other more choice and good value for pros-

The first of these is in the physical appearance of the device. The CRT is now often housed in its which allows the which allows the meric editing terminals to emulate the company of the screen to be tilted and swivelled. This casing also contains most of the electronics for the VDU. The graphics. The cost of these upkeyboard is connected to it hy e grede kits is a fraction of the cost of a separate graphics terminal, and they are finding an eager marflexible cable.

The impetus to make terminals easier for operators to use came initially from labour organisations is Scandinavia. Locel terminal ntatiufacturers responded and then found there was n matket in other parts of Europe for the same kind

Gradually, the realisation that higher productivity from a computer system could in certain cases be Printe & directly attributable to an ergor mically designed terminal has led

to a widespread acceptance in Europe of this design principle. Other aspects of ergonomic design include the choice of green or amber phosphor for the CRT and fine edjustments on the intensity of the display to match its internal contrast to the operator's visual surroundings.



When a certain amount processing power bas been added to the terminal and it can do local processing and editing without reerring to the host computer then it has become a workstation.



The ability to add intelligence to a VDU has meant that these devices can be much more closely adapted to all kinds of specialised application. The terminal can be set up to suit an application with some interrogative ability, without using the host computer at all. It can process the raw data input and pass on clean, formatted data to be processed by the host in a form nore efficient for it to deal with.

A programmable terminal can also be made to emulate protocols for different manufacturers' terminals and this is a way in which specific market needs can be met.

Another interesting part of the VDU market is that for VT-100 compatible terminals. When Digital Equipment brought out this screen editing terminal some years ago it could not have predicted that it would become a de facto

So great was the demand for these VDUs that DEC was unable to meet it, and a large number of terminals that were compatible with it were offered by other

Generally, there are few leading edge technology surprises with VDUs as they have tended to

evolve slowly, so almost all of them

have a high degree of dependabil-

High-speed in printers have been available for some years now,

and despite their large size and the

noise they produce they seem likely to remain popular for high

throughput applications.
Enjoying a boom, however, are serial dot matrix printers and dai-

sywheel printers. The reason for

the growth in sales of matrix prin-

More recently DEC has been able to produce enough to meet demand and has also brought the price down, thereby dealing its competitors a double blow. Their response has been to offer all the enhancements normally optional on DEC's screen as standard, and to undercut the VT-100's price still further. This may eat away at

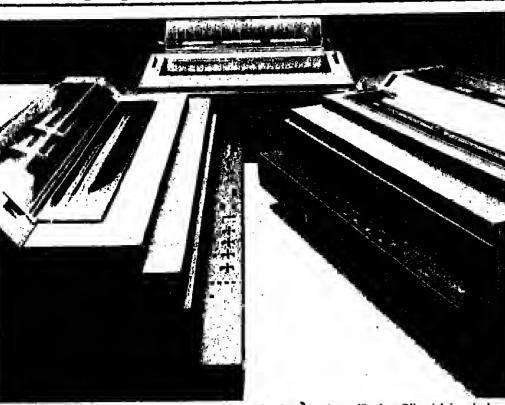
pective purchasers of VT-100 type the Tektronix 4010 terminal to produce reasonably complex leading electric typewriters.

The daisywheel printer is being slowly refined, and gradual price reductions with this product can be expected over the next few

Other technologies such as non-impact thermal and electrostatie printing have posed little threat to the established technologies of the dot matrix, daisywheel and line printers. They have, however, found specialised niches, particularly for CAD/CAM and graphics

It is interesting to note that the Sinclair ZX printer uses thermal printing technology. A dot matrix mechanism would not bave allowed it to be offered at its price of around £50, Dot matrix printer

Inkjet printers have been de-



Non-impact printing technologies still pose little threat to traditional impact printers, like these Olivetti doisy wheels.

ters is their decreasing size and price combined with very accepta-ble levels of reliability. This has been achieved by applying mass production techniques.

It should, therefore, come as no surprise to learn that the Japanese have come to completely dominate the very low end of the dot matrix printer market.

The demand initially came from microcomputer users who wanted a printer that cost less than their processor units. The £200 price barrier was broken last year by a small single needle matrix printer from Keikosha and prices should

Dot matrix printers produce readable printout at low cost but the quality of the printing on the lowest-cost models is unsuitable for correspondence. It was to this problem that a number of the established matrix printet manufacturers addressed themselves when they realised that they were being threatened from below by the low-cost matrix printer makers

and from above by the makers of high-quality daisywheel printers. This led to the development of dual mode matrix printers which can print rapidly (what is ity output) or print solid characters itable for word processing appli-

Dot matrix printers are also easily adapted to printing graphics in the same way that they build up characters with single impacts of the needle on a CRT, and this has been another reason for their popularity with microcomputer

Daisywheel printers produce output similar to that obtained from electric typewriters. This is why this type of printet is used for output from word processors. A greater range of typestyles is be-coming available for these machines and will eventually

prices should continue to fall,

quantities for some years but have 

for example typestyles pronmed into software, and nearilent operation. At present. though, their prices and reliability put these devices at a disadvantage when compared with dot matrix and daisywheel printers.

Inkiet printers use advanced technology and should only be considered if high performance is considered essential.

Variations to conventional printers include four-colout matrix printers. The roain appeal is obviously graphics and the demand has come from users who want hard copy from colour graphics screens, the prices of which have been plummeting with the advent of single chip display generators and powerful 16-bit microproces-

#### Disc drives

Floppy disc drives have found widespread use in all kinds of micro and minicomputer equipment. Now that they are being produced in very large numbers, particularly by US and Japanese companies, their prices have come dern to see lever of 100 for 516 in down to as low as £100 for 51/4-in floppy disc drives bought in quan-

With standard media the limits to capacity seem to have been reached, and some devices which offer higher capacities have to employ special media, such as that used on a Burroughs 8-in drive. Persci, bowever, claims to offer e drive with unformatted storage

capacity on two standard diskettes. New developments in floppy disc drives have concentrated on increasing capacities but often at

never really caught on in a big way. Theoretically the principle offers great flexibility, including 10-Mbyte Iomega drive first un-

A new drive from Amlyn Corp California looks es though might offer some solution to these problems, though. Although it is only the size of a 51/4-in floppy disc drive, the device provides eight Mbytes of unformatted capacity with a apecial five-diskette car-tridge. The other significant fea-

from standard 514-in diskettes. some manufacturers and huyers are not satisfied that 514-in disc drives are sufficiently compect. 3½-in floppy disc and Sony has started marketing a 3½-in floppy disc drive to OEMs.

With floppy disc drives the em-phasis has always been on low cost but there is a clear choice between liar products and more experimental, light performance drives.

The top end floppy disc drives overlep in price and storage cepacity with low-end Winchester drives, particularly with the 51/4-in Winchesters where the emphasis has alweys been on low cost. Although the technology of using e hard disc rotating within a sealed chamber was pinneered with large

In their continuing quest for miniaturisation it seems that Matsushits, Hitachi and Maxwell have proposed a standard for e

Another trend towards miniatuisation is to keep the diskettes the same size but to make the drive smaller. There are a number of slimline" 8-in drives eppearing which allow two drives to fit into the space previously occupied by

veiled et last year's NCC in

ture of the drive is that it can read

and expensive 14-in drives, de-mand for 514-in Winchesters has

megebyte of storege per diskette which is shout the limit with these These small Winchesters

come from users of floppy disc drives who need more than the

typically have a capacity of around six Mhytes, although 12 Mhytes is becoming increasingly common and a 26.7-Mbyte model has recently been announced by UK manufacturer Rodime.

Whereas small Wiochester derices are being brought in as high performance replecements for floppy disc drives, 8-in Winchesters are offering a challenge to the storage module drives from DEC and other manufacturers.

With 51/4-in, 8-in and 14-in drives, recording capacities are steadily being increased without the help of thin film technology for the heads and discs. When new techniques are sufficiently de-veloped there will be grest gains to be made in storage capacities. For example, 5 4-in drives will be able to store et least 100 Mbyles.

There may be some delays, however. Seagate Technology for example, has recently posiponed the release of a high capacity thin

film technology version of its best-selling ST506.

One key problem of using Win-chester discs is that of back-up. As the Winchester disc is not removahie. some kind of temovable storage is needed to maintain or copy

Many alternatives are currently used to fulfil this role, including the floppy disc drive, but no single device has emerged as a universal solution. A separate 14-in cartridge tope drive unit can be used, as can e 1/2-in streaming tspe drive, hut in the long term the ides of integral hack-up looks more

This takes the form of a tape drive or removable disc combined with a Winchester drive in a casing no larger than that of a sisndard

As small Winchester disc drive are relatively new (only 200 5%inch drives were shipped in urope in 1980; by 1986 this igure is projected to reach 250,000), considerable price reductions can be expected.

Despite the fact that 51/4-in drives are newer to the computing scene than 8-in models, h is with the latter that standards problems arise. Seagste has effectively set an industry standard for a 514-in drive interface which all new entrants to this market would be

Among 8-inch drives there is 8 choice of interfeces, with some manufacturers keen to push SMD compatibility while others want

formity to an Ansi standard. Just es the pressures of ministurisation are being felt by manufac-turers of floppy disc drives, so are they being experienced by makers Winchester discs. For example, Syquest, an offshoot of Seagate Technology, has announced that a

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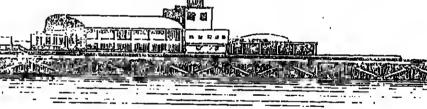
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(8883)

## University of Birmingham

Centre for Computing and Computer Science The Cantre provides a wide range of local and remota computing facilities to the University. The Centre's maintrame systems include an ICL 1806A and a DEC 2080 interactive system for both isaching and research. These services are being extended by the dayslopment of an Internal network which will have links into the Midlenda Universities Computing Natwork. The Centra la currently in the process of selecting a new system to replace the 1906A in the first helf of 1983. Applications invited from graduates for post of:

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formulating plans for on- and off-alte communications and on the communications aspects of new procurements.
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COMPUTER WEEKLY, March 25, 1982

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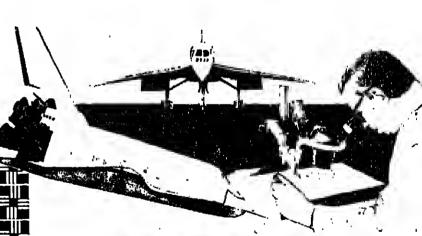
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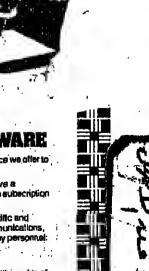
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DEC Progs/Designers

Central London: Salary to £15k

A leading Total Systems Supplier specialising is the development and sale of communications software is seeking Applications software is seeking Applications software is seeking Applications of the PDP/RSX-11M or VAX/VMS configurations and Software Designers for its Central Loodon Research and Development the facility. Candidates should hold a numerate degree and have two years' application programming or software design involvement. Fluency in either FORTRAN or an Assembler language is essential. Particular

#### **Navigation Systems**

West Home Counties: Salaries to £13k

A highly regarded supplier of precision electronic instruments is seeking a number of Software Development Engineers and Systems Designers for its Thames Valley Research and Development facility. The Company specializes in the development and supply of software and public sectors. Current requirements exist for those who hold at the salaries to £13k

least one numerate degree and have a minimum of one year's Industrial experience.

FORTRAN or Macro-11. Of particular interest are candidates who have an in-depth knowledge of the development of complex software where high reliability is a critical programming state.

#### Inter-active COBOL **Programmers**

Central London: Salary to £11k+

Our clients are seeking several COBOL Programmers for their recently upgraded installation. You will be actively involved in the development and testing of a sulte of programs written in COBOL for an on-line lacility. It is an absolute condition that you offer a minimum of two years' on-line COBOL programming experience, preferably gained in a mini-computer environment. A significant function of these positions will entail close liaison with the Company's finan-

#### **IMS Specialists**

Holland: Salaries to £16k

A leading Dotch Systems and Software Councillation, with its Headquarters in Amsterdam, leas an urgent requirement for IMS Specialists, Sullable applicants must offer current or very recent IBM programming esperience in either ASSEMBLER or PL/I and must be fully familiar with the internals of IMS. Working as a senior member of a

#### Instructors-Software Design

West Thames Valley: Salary to £12k

A recognised supplier of mleroprocessor based systems has recently relocated to purpose-built premises. Consequently, the Company is now aiming to supplement its existing lecturing and training personnel. Ideally, candidates should offer hands-on expenience in the speciality areas of drivers, protocolling and diagnostics. For certain positions eandldates ahould offer an in-depth

#### **Communications Programmers**

Central London: Salary to £10k

A number of Development Engineers are required for the Communications Division of a market-leading supplier of message and packet-switching systems. Of particular interest to our client will be Programmer/Designers who have at least two years experience in the design and development of tarminal coatrollers and protocol convertors.

#### Fortran/Graphics

Cambridgeshire: Salaries to £10k

A Cambridgeshire-based supplier of Oraphics Systema is currently seeking additional FORTRAN Programmers. Suitable applicants will be educated to degree or FINC standard and will have a minimum of I year's subsequent FORTRAN programming expersione in a technical or scientific environment. Whilst particular bardware experience is not important, candidates who have had expessure to CDC or Prime-based systems will be

#### X25/SNA Consultants London/EEC: Salaries to £17k

Having established its reputation as a supplier of turn-key office communications by the supplier of turn-key office communications ity to identify ustapped market areas, and systems our client is now recruiting a cumber where necessary, adds in the specification of Consultants to assist in its planned expanded to help successful candidates are likely to be already clients define communications requirements, identify alternative solutions, define costs for have extensive experience of \$25 and and benefits and plab implementations.

#### PROGRAMMER ANALYSTS

SURREY

IBM SYSTEM 34/38

Datescene are looking for Programmers wishing to develop their analytical skills. Opportunities exist at two locations in North Surrey. Both of these companies are about to install system 38 equipment and after conversion are embarking on development projects fully utilising the facilities affered by the System 38. Ideally you will have upwards of 18 months' experience in either RPG II or RPG III. In return for your skills both companies are offering a high career development curve. For further details ring Datascene quoting REF:

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MIDDLESEX

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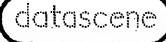
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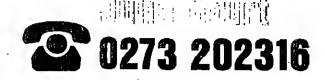
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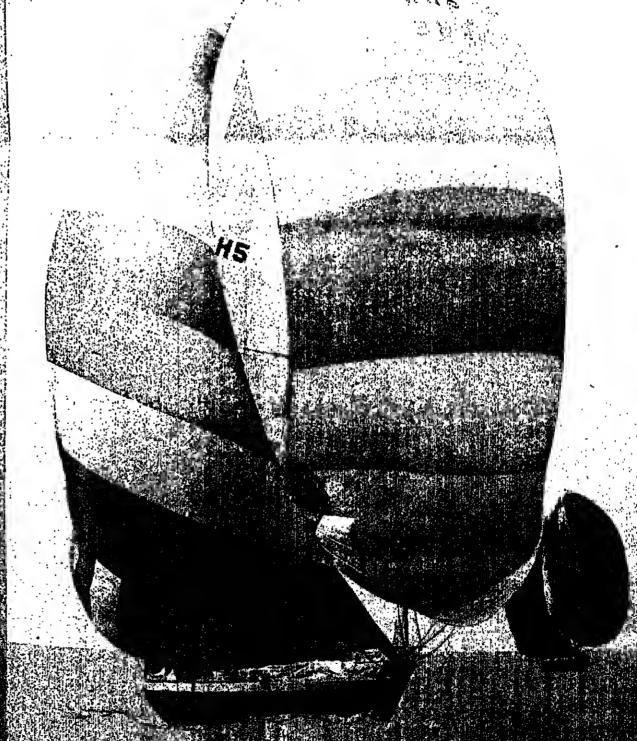
A minimum of 18 months' RPG II progremming experience in a financial anvironment. Preference will be given to programmers with IBM S/34 experience, although training in IBM S/34 operation may be given to the right applicant.

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#### PROGS & ANALYST/PROGS.

At the end of 1961 and the beginning of 1982 we have identified numerous and verious requirements in the ISM sector. All the siles are mainly Cobol orienteted but eny PL1 knowledge would be an adventage. One C. London user has recently installed two ISM 4341 mechinsa and now wishes to expand their development teem substantially. The poets range from Programmers, with 1 year's Cobol, to Anelyst/Programmers, with 1 year's Cobol, to Anelyst/Programmers, with avairance. Preference will be given to applicants with some knowledge of CICS or similar real time system although training will be given where necessary.

This is a typical C. London requirement but there are meny other sites recruiting in other parts of London end the Home Countles.

#### **PROGRAMMERS** to £9.000 BM ASSEMBLER

2 Central London financial instellations are sasking to recruit experienced IBM Assembler Programmers to complement their existing teams. Applicants should have a minimum of 1 year's experienced gained in any commmercial environment. Knewledge of CICS would be useful however treining will be provided where necessary. Both companies offer secure positions with good career prospects and a wide range of banefits including mortgage aubsidy.

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Applications (quoting post no: 3002088) giving full particulars of egs, experience, qualifications etc., togethe with the names end addresses of two referses should reach the County Planning Offics r., Martin Street, Stafford ST16 2LE by 6th April, 1982.

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SIGMA Sigma House North Heath Long Horsham Sustex NH12 4UZ

SALES AND MARKETING OPPORTUNITIES - 1

Ivan Newman calls for planning, effort and investment to be put into computer sales force training programmes

Sales training must go hand-in-hand with promotion policy

dustry is forecast to grow, and it that is to be so, then the selemen needed in find assumers for various prodocts will have to be

The industry can rely on a and number of large companes to provide compre-"had-hunters" or "poach-en" then furnishing smaller rapanies with salesmen. hernatively the smaller

mounies can offer training programs to their lesforces. This latter ourse may be the favoured one, because without the ersonsi development a ell-structured training programme brings, the once head-hunted" salesman could be enticed to move staln. Or perhaps a an hired from scratch might well be tempted by er opportunities through

better training. However the training is done, the requirement is for a witsman who can sell the product in a workable conion at the correct price (or margin), with the hile retaining the customer's respect against competi-

With these things in mind

how to train somebody from scratch, as quickly and effi-ciently as possible while maintaining the respect of an experienced salesman for

the training programme.

Not everyone shares the view that computer sales training is either challenging or worthwhile.

Were a poll to be taken of views on sales training, some replies might be along the lines that ettending a sales training course is a pleasant and not too strenuous holiday from daily sg-

gravation. Perhaps it would be seen as a waste of valuable selling time, or at worst completely irrelevant. The sales trainer, on the other hand, may be cure or possibly as having

been put out to pasture.
All these views might well be justified if sales training

Statement

"It's irrelevant"

"It's s pleasant relaxing holiday

'It's a waste of

"The trainer's on

support software - and do this in a professional manner

to the actual promotion of the product. Sales training should be made an instrument of sales promotion

and investment must also be put into the training. Merely to say that sales training is part of sales promotion policy is not enough - the two must go hand-in-hand.

planning, effort and investment necessary to make a good training programme take two elements of the To sell the product that

To illustrate the degree nf

can do what is required • To sell the product in a

Two different sorts of training exercises must be formulated for these two characteristics - namely,

equipment/software capability, and selling exercises to allow practice in customer For practical exercises to

be used as tools by the salesman, they must relate directly to likely sales situations. Sales promotion must, therefore, provide profiles of what functions are required by potential

is as follows:

Planning: The overall course objective needs to be split into smaller sub-objective needs to be split into smaller sub-objective. tives and individual practical sessions. For example, if

enable the salesman to prising seveo elements (software modules, features, peripherals and so on), then

The training is going to help you sell the product the company wishes you to sell.

seven items should each be

The training will set you specific sales targets upon which you The training will enable you to sell more effectively.

The trainer has to be able sell you ou the product, on selling it The sales direction re-

ware and documentation ilability all need to be taken into account with sales promotion providing the llustrate the main target ap-

Effort: Working on the premise that students will feel motivated if successful, each practical session should be constructed so that the desired end result is achievable by all. The effort is necessary to ensure that each session works by providing full instructions, sample data input (ie, which buttons to press) and sample end results together with a clear statement of objec-

Investment: Few things are more frustrating to a student in a practical session than Successful sales training needs a stable machine installation together with enough standby equipment m allow for inalfunctions in a short training course, time wasted is time lost. For practical work, then, the evestment should mainly be in equipment but also in the ares of technical support to cusure maximum useful

by the company



policy but by the actual design of the exercise.

The challenge to the computer sales trainer (and of course to the company's need) is to equip the salesman at the time of training and for the future with skills needed to analyse a constantly changing envi-ronment in the field.

This challenge is met by combining into a well ordered, structured whole, certain seles training techniques - such as commercially available sales training videotopes - and by the development of presentation and demonstration tech-

and by developing some method of evaluating com petition.

And, of course, by com mitting the right level of ment so that when the manexisting product rises to Itis feet with his plans for the hardware, software, marketing, pricing, commisof announcements a complete training package which ability to actually soil the

niques sessions, sandwich The author is sules to training, accountability as manager at Burroughs. The author is sales training

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## SALES AND MARKETING OPPORTUNITIES - 2

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Environment in Hastings, won our £10 personnent of the The £5 prizes go to John Harvey, a systems analyst with lectures at Leeds Polytechnic.

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LAST week I wrote about wouldn't be profitable. the vagaries of the manage-ment hierarchy and the im-plications of the Peter Prin-However, should the world at large and his peers in particular ignare his iple which suggests that the individual inexorably progresses to his or her natural level of incompe-tence, with the logical very enthusiastic, he is likely to be heard boasting at some later date "I always knew it had great poten-tiall"

conclusion that the only people working effectively are those who are yet to Another less reliable but nontheless common symp-ton of the "Peter Man" is acbieve this unfortunate state of personal lnademakes everything much more complicated than it cult quality to measure un-

needs to he.

Verbal or wrinen instructions, descriptions, indeed
communications of any kind less it is concentrated in a single action or situation.

Many inadequate managers
are able to survive by virtue of their skill in avoiding involvement in anything that will expose their vulne-rability.

They remain aloof and confusing manner, often with considerable emphasis

on obscure references and technical gobbledygook. The simpler the idea, the more apparent the desire for out of reach unless they are sure they can exploit that

enormous gap between a little knowledge and total ig-norance. Perhaps they be-come instinctively aware of the wisdom of Abraham Lincoln's words: "It is bet-Any manager worth his salt knows how important it is to make every commu-nication as simple as pos-sible. It is what a military friend of mine calls "soldier proof'. This is based on the ter to remain silent and appear to be a fool than to principle that if a piece of open your mouth and re-move all douht." equipment can feasibly he hroken, no matter how A classic manifestation of obscure the chance, it will management incompetence is autocracy, for it is a method of controlling be. Similarly, if an instruction can possibly he misun-derstood by someone, you people which relies entirely can absolutely rely on this

upon one-way communica-tions, non-involvement at being the case.
Sensitive and aware people are slightly less vul-nerable to the trap of the the grass roots level and an sence of any attempt to Peter Principle than the archange the status quo. Totalitarianiam can only rogani. Those with a degree of foresight can perceive the survive where no questions implications of further prevail - usually hecause career advancement and the perpetrator of the only move forward when they know without reservasystem has no satisfactory that they are able to

Autocracy is seen hy handle a heavier job. many victims of the Peter Principle as the only avail-Unfortunately, ego and the need for recognition is a powerful force which can ofahle survival kit. Weiler must have had such people in mind when he said ten override the commonsense of all but the most

Nothing is impossible for

H. L. Mencken once said

teach!" There are perhaps two further corollaries:

Those who cannot teach —

perceptive individuals. If only those who make the mistake (both the appointed and the appointer) could have the courage to admit to errors of judgment "Those who can - do. Those who cannot when promotions go wrong and undo the situation by

seeking alternatives before real harm is done. adminstrate. Those whn Unfortunately, this is seldom the case. What is more Someone once said that common is to allow a bad echnology is dominated by arrangement to feater until lt two types of manager -those who do not under-stand what they manage and becomes a disaster, leaving no option hut departure with ignominy accompanied those who manage what they do not understand. Some other wit, possibly with this adage in mind, suggested that business consists of two and at least one shattered individual who feels his career is ruined.

If only every such person realised that, provided the types of person — those who divide people into two types and those who don't! incident is viewed objec-tively, it could be the most valuable lesson in his life. The incompetence of the individual manager can

The victim of the Peter Principle can never find job satisfaction because he can never feel secure. To quote Lincoln once again; "You can fool all of the people town of the firm and home." usually be gauged by his acceptance of new ideas. Put a new and unusual scheme to someone who is flying shove his ceiling of compe-tence and his lack of selfsome of the time and some of the people all of the time, confidence, perception, but you can't fool all the people all of the time." commitment, imagination, etc, will quickly become

apparent. Initial reaction is likely to Alan Williams be something like "It's useless don't waste my PUZZLE
time." If everybody else's
reaction is subsequently
favourable, his attitude is ANSWER

likely to be modified to "It has possibilitias, but it 1237 × 893 = 1 [0464].



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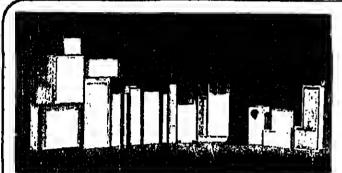
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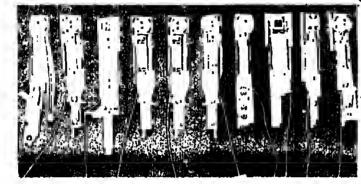
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